

THE PLANNER'S NOTEBOOK

*A compendium of information on town
and country planning and related
subjects*

Edited by

H. MYLES WRIGHT

M.A., A.R.I.B.A.

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I N T R O D U C T I O N

THE aim of this notebook has been to collect, within a single volume, information on many aspects of town and country planning which has hitherto been available only in a large number of separate publications.

During recent years the scope of town and country planning—in its generally accepted meaning of the guidance of land use in the interests of the whole community—has been greatly broadened, and, simultaneously, local planning authorities have been granted much greater powers and resources. Moreover, the Minister of Town and Country Planning is now required by statute to frame and carry out a consistent national policy for the use and development of all land throughout England and Wales, and a similar duty rests upon the Secretary of State in Scotland.

The change that has taken place is therefore a very large one. Before the recent war, town and country planning did little more than provide a framework to which future building development in some local areas was intended to conform, and powers to ensure conformity were weak. In future, town and country planning control will be universal, and will be exercised nationally and for regional areas as well as locally. Local planning authorities will have powers to ensure that development takes place in the manner desired, and to carry out development themselves if this proves necessary.

Town and country planning will therefore be concerned with the amount and location of development of all kinds that takes place in every area—town, county, or region; and everyone who desires to change the existing use of land or buildings must obtain planning permission. In consequence, information about the aims of town and country planning, and the reports and other data which have contributed to the formulation of national planning policy, will become of much more general interest than hitherto. Similarly, those engaged in planning administration

INTRODUCTION

will be faced with a great extension of their responsibilities, and will be called on to deal day by day with planning questions of many different kinds, for which they will require both general and detailed information.

For these reasons, there is no doubt that a comprehensive reference book to the more important published information on town and country planning would be of great value. It is not claimed that this notebook is more than a substitute for such a comprehensive work. In the period during which the notebook has been in preparation, there has been a great increase in published literature on planning, and in many cases information available in earlier publications has been superseded. Moreover, the majority of the text of the book went to press at a time when the legislative framework of the new planning system, and supporting advice on administrative and technical problems, were just beginning to be published.

Many deletions and some additions were made just before publication to improve the balance and immediate usefulness of the notes, but the work remains, as it has been called, a notebook.

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A NOTE ON THE CONTENTS

THE notebook contains 272 excerpts from, or summaries of, published books, reports, pamphlets, or articles.

The notes, for the selection of which the Editor is solely responsible, may be divided in the main into two classes: those that deal with the fundamental planning problems which have been closely examined during the past decade, and which the legislation introduced since 1944 is designed to solve; and, secondly, notes containing information on particular aspects of planning—legislation, administration standards and technique.

The source is given in the ascription below each note. To distinguish summaries from excerpts the signs (*S*) and (*E*) are placed after the ascriptions. All the tables are excerpts. In preparing the summaries, care has been taken to try to retain the argument and emphasis of the original, but a risk must exist that in a few summaries the balance of the author's argument has been disturbed. The Editor and publishers would be grateful if any such cases could be brought to their attention.

The notes are arranged alphabetically under the headings believed to be those most commonly used by town and country planners. Information on more than one subject is frequently contained in one note and readers are recommended to look for information by means of the index rather than by the headings in the text. The index also contains entries under authors and geographical location.

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THE PLANNER'S NOTEBOOK

ADVERTISEMENTS

Control of outdoor advertising

We recognise that outdoor advertising by posters is of service to the public, and appreciate that effective advertising is essential to commercial interests. But the fact remains that roadside advertising has, in many rural and urban areas, been one of the chief causes of disfigurement, and has contributed to road accidents.

War conditions have substantially restricted roadside advertising, and there is now opportunity to enforce adequate control which, if missed, may not recur for many years. We therefore urge that local authorities should be at once empowered to regulate the number, siting and form of all kinds of outdoor advertising displays which are likely to be prejudicial to the safety and amenity of a public highway, including signs indicating the nature of the business carried on at the premises to which they are attached.

A general prohibition of roadside advertising in urban areas could not be justified, but local authorities should be able to effect the removal of existing, and the prohibition of new displays near roads of the parkway and boulevard type, and exercise strict control over displays near any road.

We wish to emphasise the danger arising from the distracting effect on drivers of roadside advertisements and signs, particularly those which embody flashing, illuminated or reflecting devices; also from advertisements which diminish the effectiveness of traffic signs or signals, or have the guise of traffic signs.

Ministry of War Transport. Report of the Departmental Committee. Design and layout of roads in built-up areas. 1946 paras. 445-449 (S)

AERIAL PHOTOGRAPHS

Aerial photographic technique and its use in map revision

Air survey is today recognised as a valuable new surveying technique.

The oblique aerial photograph is taken at an angle of from 35 to 60 degrees to the horizontal, and presents an attractive and detailed picture which can be immediately appreciated by anyone. An enormous amount of information is recorded by one oblique photograph and aerial views taken in this manner are used by the professions, municipal authorities, industrial firms and building contractors to record conditions as they exist, to plan new works or to record progress in construction, for slum clearance purposes and for many other purposes.

The vertical photograph is quite different. It is taken with the camera pointing downwards and records the ground in plan. In the vertical photograph we get something of value to the surveyor and town planner. It gives more than can a line map and, with the aid of a stereoscope, can be seen in three dimensions. From it a line plan can be compiled or an existing plan brought up to date. The use of vertical aerial photographs for mapping and map revision is a new survey technique which has been intensively developed in the last twenty years, and has come to the fore recently in this country because of the difficulty of keeping pace with the large amount of building development by the ordinary methods of map revision by ground survey. Air survey does not replace ground survey, for without ground control and the co-operation of the ground surveyor no air survey of any magnitude is possible. The photograph provides the surveyor with a more rapid, and, in some cases, more accurate, means of accomplishing his survey. The vertical photograph places the ground in a convenient form on the surveyor's desk.

The camera is automatic in operation and electrically controlled. The film is automatically moved forward after each exposure and enough film for 200 photographs is contained in one magazine. The mechanism is so timed that each photograph includes part of the ground covered by the previous exposure and can be laid over the other. The dials of the various instruments in the camera record the flying height, time of exposure and other information, all of which are automatically recorded in the margin of the film on each exposure.

The pilot flies the aeroplane in parallel lines at a prearranged height and speed. Each photograph in the line of flight overlaps the previous one by about 60 per cent. and each line of photographs overlaps the adjoining line laterally by about 30 per cent.

The height of the aeroplane and the focal length of the lens used controls the scale of the photograph and the ground area covered.

AERIAL PHOTOGRAPHS

Thus, flying at a height of 9,000 feet with a 20 inch lens, a scale of about $1/5,400$, or $12\frac{1}{2}$ inches to 1 mile, is obtained. This is the scale adopted when undertaking the revision of 25 inch Ordnance Sheets.

The contact prints will not be exactly to scale owing to slight tilts of the aeroplane and variations in the contour of the ground. These inaccuracies are corrected in the workroom by using a specially designed enlarger and control points on the ground. The 25 inch Ordnance Sheets are used as a control. In a reasonably flat country like most of England, scaled photographs can be produced to coincide in all essentials with the 25 inch Ordnance Sheets and these can be used for the revision of out-of-date plans.

To obtain full value from the photographs accurate interpretation is essential and this interpretation is essentially the job of trained men. A panchromatic film is used, which in conjunction with a colour filter gives a faithful monochromatic rendering of the various colours of the earth's surface. No hard and fast rules can be laid down as to the various tones and the ground features they represent, but it is a subject in which training leads rapidly to efficiency.

Aerial survey photographs are nearly always taken under sunny conditions and the cast shadows assist interpretation; particularly in the case of objects of small plan—such as telegraph poles and various types of fencing.

The 60 per cent. forward overlap of each photograph is provided in order that every point on the ground surface appears on at least two photographs, and so may be studied in its three dimensions with the aid of a stereoscope. The ground has the appearance of a solid model, and it has been said that the study of a pair of aerial photographs under a stereoscope gives the most detailed and comprehensive view of the earth's surface yet seen by man.

One method of revising maps is to trace from the 25 inch scaled photographs by means of steel stylos with carbon paper and tracing paper under the photographs. To do this satisfactorily needs the aid of a stereoscope. Although the photograph, if taken from 9,000 feet with a 20 inch lens covers an area of about three-eighths of a square mile, only the centre of the photograph is used and a working area of about 50 acres per photograph is plotted. This eliminates discrepancies which may arise at the edges of the photographs. The tracing of the central portion of each scaled photograph is then laid and oriented in position on the 25 inch Ordnance Sheet.

Out-of-date detail is then erased and the new work is traced on to the sheets, and fair drawn and inked in.

Large scale plans also can be constructed from vertical air photographs up to $1/1000$ scale. A simultaneous ground survey is necessary to tie in the detail, but the amount of ground work is much reduced.

AERIAL PHOTOGRAPHS

Successful large-scale air survey has been done for the L.M.S. and the River Medway Catchment Board.

Scaled photographs may be joined together into a photographic mosaic map, and prove a valuable supplement to the ordinary line map by showing a mass of additional information. One must not, however, take measurements from such a map and expect them to be completely accurate.

In Britain the number of hours in which aerial survey can be carried out is limited by the weather; it may be taken that only 100 to 150 hours in the year are suitable. The hours may however be multiplied by the number of machines engaged. Last year (1936), for example, was an abnormally bad one from the point of view of survey flying, yet my company flew nearly 300 machine-hours and surveyed half a million acres or about 800 sq. miles.

WILLS, F. L. *Air survey and map revision. Town Planning Institute Journal Vol. xxiii No. 8 1937 pp. 191-201 (S)*

AERODROMES

Recommended standards

Table continued on page 5

	CLASS I <i>Small communities not at present on scheduled air transport system, and auxiliary airports in larger metropolitan areas to serve private flying activities</i>	CLASS II <i>Larger communities on present or proposed feeder line routes, and which have considerable aeronautical activity. Population range: 5,000-25,000</i>
	(feet)	(feet)
Length of landing strips* -	1,800-2,700	2,700-3,700
Width of usable landing strips - - -	300	500
Length of runway - -	None	2,500-3,500
Width of runway - -	None	150 (night op.) 100 (day op. only)
Number of landing strips and runways † determined by percentage of winds including calms‡ covered by landing strip and runway alignment -	70%	75%

* Sea level conditions and clear approaches. Approaches shall be clear within a glide path of 20 to 1 from the end of the usable area in the case of Class I airports and 30 to 1 for other Classes, except on instrument landing runways for which the ratio shall be 40 to 1. These ratios are the minimum permissible. Clear approaches should be as flat as possible; a 50 to 1 ratio is a desirable minimum.

† Landing strips and runways should be sufficient in number to permit take-offs and landing to be made within $22\frac{1}{2}^\circ$ of the true direction for the percentage shown above of winds of 4 m.p.h. and over, based on a 10 year wind record where possible.

‡ Calms: negligible wind conditions of 3 m.p.h. and under.

AGRICULTURE

Decline in numbers employed in agriculture

'In the years 1921-24 the total number of workers, male and female, engaged in agriculture averaged 816,000, while in 1938 the number had declined by over 25 per cent. to 593,000. The number of regular male workers in the same period fell from 587,000 in 1921-24 to 472,000 in 1938, a drop of nearly 20 per cent. . . .

'The drift was greatest among the younger generation of farm workers for whom there remained few opportunities in the country, and to whom the attractions of industry and of town life appealed most, a fact which is shewn very vividly by the fall in the numbers of young male workers under 21—a fall of some 75,000 or nearly 44 per cent. between 1921-24 and 1938, as compared with a fall of 103,000 or 19 per cent. in the number of male workers over 21 during the same period.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 paras. 51, 52 (E)

Table continued from page 4

CLASS III <i>Important cities on feeder line routes and many interim points on main air routes. Population range: 25,000 to several hundred thousands</i>	CLASS IV <i>Major industrial centres of the nation and important junction points or terminals on main line routes</i>	CLASS V
(feet) 3,700-4,700	(feet) 4,700-5,700	(feet) 5,700-and over
500 3,500-4,500 200 (instrument) 150 (night op.)	500 4,500-5,500 200 (instrument) 150 (night op.)	500 5,500 and over 200 (instrument) 150 (night op.)
80%	90%	90%

U.S. Department of Commerce. Civil Aeronautics Administration. Airport design. 1944 Table 3 (E)

BIRTH RATE

Birth rate, 1870-1938

Years	England and Wales			Scotland		
	Total Births	Total Births per 1,000 population	Total Births per 1,000 women aged 15-45	Total Births	Total Births per 1,000 population	Total Births per 1,000 women aged 15-45
1870-72	805,374	35.5	153.7	116,761	34.8	149.4
1880-82	884,766	34.1	147.7	125,633	33.6	145.8
1890-92	894,017	30.8	129.7	124,185	30.8	132.5
1900-02	932,459	28.7	114.8	131,953	29.5	121.9
1910-12	883,612	24.5	98.3	122,900	25.8	107.3
1920-22	862,240	22.8	91.1	124,944	25.6	105.1
1930-32	631,621	15.8	64.3	92,590	19.1	80.1
1924	729,933	18.8	75.8	106,900	22.0	90.8
1925	710,582	18.3	73.6	104,137	21.4	88.5
1926	694,563	17.8	71.9	102,449	21.1	87.6
1927	654,172	16.7	67.5	96,672	19.9	83.1
1928	660,267	16.7	67.9	96,822	20.0	83.4
1929	643,673	16.3	65.9	92,880	19.2	80.0
1930	648,811	16.3	66.2	94,549	19.6	81.6
1931	632,081	15.8	64.4	92,220	19.0	79.8
1932	613,972	15.3	62.6	91,000	18.6	78.1
1933	580,413	14.4	59.4	86,546	17.6	73.8
1934	597,642	14.8	61.5	88,836	18.0	75.4
1935	598,756	14.7	61.0	87,928	17.8	74.4
1936	605,292	14.8	61.2	88,928	17.9	75.1
1937	610,557	14.9	61.4	87,810	17.6	73.7
1938	621,204	15.1	62.4	88,627	17.7	74.0

Note: Figures in the upper portion of this table represent the average experience in the three years about each Census.

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938 Cmd. 6232 1940 Table 24 (E)

BIRTH RATE

Fluctuation in birth rate, 1840-1940

'The oldest members of the community were born about 100 years ago when the present system of birth registration was first introduced into England and Wales; similar registration was not introduced in Scotland until twenty years later, but having regard to the minor part played by the Scottish figure, it may reasonably be inferred that in Great Britain as a whole, the births prior to 1840 numbered under 600,000 per annum. From that time they rapidly grew to more than a million per annum, which was maintained between 1876 and 1914, with a peak of 1,082,000 in the year 1903. The subsequent decline has reduced the annual figure to the level of approximately 700,000, at which it stands today. That means, of course, that the population now at the middle years of life is exceptionally weighted, in that it consists of survivors of births which were 60 per cent. and 80 per cent. in excess of the extremes from which the oldest and youngest sections are sprung.'

*Registrars-General of England and Wales and of Scotland.
Current trend of population in Great Britain. Cmd. 6358
1942 para. 5 (E)*

BUILDINGS

Density of buildings in relation to street traffic

It is not possible to relate the cubic capacity of buildings in a given area to the traffic capacity of the streets of the district. Time concentration, for instance, plays as big a part in traffic congestion as place concentration.

Large buildings can be designed to compensate for the additional traffic demands which they create. All unloading of goods and passengers can take place within the building lines and provision for parking can be made in a similar way. In an ordinary 68 ft. street in the business district of San Francisco, elimination of parking and loading would double the street's traffic capacity.

In addition, relatively low buildings such as department stores and theatres attract many more pedestrians per unit of floor space than do high office buildings. In St. Louis three times as many people passed in and out of 11 retail stores in a day than in and out of 27 office buildings. A similar count was made in San Francisco for 25 retail stores and 79 office buildings. The four largest stores had a total daily traffic almost three times that of the four largest office buildings.

BUILDINGS

The average daily rush-hour and noon-hour pedestrian traffic (total number of people passing in or out) was found for each 1,000 ft. of office space in the 79 office buildings and for each 1,000 ft. of gross sales space in 6 large stores. The results were as follows :

	<i>Office buildings</i>	<i>Stores</i>
Average daily traffic per 1,000 ft. of floor space - - - - -	74.8	160.3
Rush-hour traffic per 1,000 ft. of floor space - - - - -	7.9	15.9
Noon-hour traffic per 1,000 ft. of floor space - - - - -	11.38	29.4

Source: American City, May 1930.

Town Planning Institute Journal Vol. xvi No. 8 1930 pp. 228-229 (S)

Building volumes in relation to street areas

It is possible to replace 2-storey houses with their curtilages by blocks of commercial buildings covering nearly the whole area and about 100 feet high, without adding a square foot to the area of the street. Indeed, only a trifling boom in business activities is needed to impose on us hugely increased building masses with no corresponding accommodation for the traffic they will introduce. The traffic increase is proportionately much greater than the increase in building mass as commercial areas are much more intensively employed, but a few figures showing the increase in cubic contents of buildings permissible under existing regulations may be interesting.

A survey has been made of several residential areas in Southwark which are likely to be redeveloped for commercial purposes, and in no case did the cubic contents of the buildings exceed 300,000 cubic feet per acre. Any of the areas would carry business premises of five times the volume. An area in the worst part of a Yorkshire city was also surveyed and the volume of the buildings found to be 420,000 cubic feet per acre. The area could have been used for business and a part of the city so used carries 1,117,000 cubic feet per acre.

A possible solution might be to make a survey of the volume of building in blocks between major roads and to lay down thereafter reasonable standards of building density, section by section. To encourage redevelopment the permissible density would have to be

higher than that existing on overall averages. Existing road widths would be taken into consideration in fixing the permissible increase. For instance, in a redevelopment area of small houses which have an average cubic content of 240,000 cubic feet per acre, it might be decided to allow 300,000—just manageable without danger to health by skilful planning. This would be for residential redevelopment. For business purposes, providing the roads were adequate, 600,000 cubic feet per acre might be allowed.

But the landowner might not think this went far enough, since he may be able under existing byelaws to put 1,500,000 cubic feet (exclusive of basements) on an acre of ground.

The solution here might be to allow a 10 per cent. increase in mass content for every 5 per cent. of the site area surrendered. The owner could by this means build up to 3 or 4 times the volume at present on the site, but only by coming to terms with the planning authorities. This method has drawbacks but would increase the bargaining power of planning authorities.

It is not easy to establish any definite relationship between street areas and building masses, because the street area does not necessarily correspond with its traffic value, and the uses to which buildings are put make very different demands on the street as regards traffic.

In the central areas of most cities the proportion of occupied land ranges from 55 per cent. to 70 per cent., and except where an abnormal amount of traffic passes through the area, this proportion seems admissible until buildings begin to exceed an average height of 5-6 storeys.

Beyond this traffic congestion begins, and street systems in all our larger cities are tending to be inadequate for the building volume permissible for business purposes.

It is useless to enlarge traffic routes beyond 50 per cent. of the total land area: beyond this point two decks for traffic seem the solution, towards which modern cities seem to be tending by means of underground or elevated railways.

LANCHESTER, H. V. *Height and bulk in buildings in relation to their requirements and surroundings. Town Planning Institute Journal Vol. xx No. 8 1934 pp. 215-216 (S)*

The design and layout of urban buildings

Can a haphazard assemblage of buildings, each conceived in isolation, and expressing nothing but its own immediate purpose, really be described as a city? What attribute is it which makes a building urban? To be urban a building must have *urbanity*; and urbanity is good manners.

There are several ways in which buildings can show courtesy or discourtesy towards one another.

In many cities and villages, buildings of a private or commercial character are low in height and inconspicuous in design, while the principal public buildings—cathedral, churches, museums—are given a formal pre-eminence. Civic order, social stability and a fine conservative temper are expressed by such an arrangement.

But this precious standard of values cannot be maintained when each building begins to display selfishness and a disregard of its neighbours. It is said that modern commerce is based on competition and that architecture should reflect this fact. It is questionable whether this is either possible or desirable. Commerce and industry have greatly expanded in modern times but so has the scope of local government and the public services. Moreover, commerce had a great place in cities during the Middle Ages and the eighteenth century, when a subordination of private to public buildings was almost universal.

An abandonment of this form of urbanity tends to initiate a series of what seem undesirable consequences. Commercial buildings first dominate public buildings as regards size; then they appropriate domes, spires, colonnades and other features by which public buildings were formally distinguished from private; and this finally leads to competition in self-assertion between individual commercial establishments which may eventually decrease their attractiveness and the popularity of all or many of them.

One shop which is sharply distinguished from the general run of its neighbours, either in size or in form or colour, may well benefit from its singularity. But once these neighbours begin to behave in a similar manner the advantage is lost, and with it there may have been lost qualities formerly possessed by the street as a whole which may have had commercial value. For example, the restraint and harmony of the shops in old Regent Street expressed an aristocratic spirit and formed an attractive background for a fashionable promenade. It is therefore clear that the most that can be accomplished by this competition for conspicuousness among commercial buildings, is to give an arbitrarily selected fraction an architectural superiority which belies their equality of status with other commercial buildings and prevents public buildings from attaining an appearance of dignity and importance. For a large majority of things cannot be emphasised at the expense of a minority.

On the other hand, a distinguished minority of things can become physically prominent when set against the background of an unobtrusive majority. And the second arrangement was given artistic expression in the old-fashioned architectural hierarchy by which

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relatively few public and semi-public buildings were allowed to pre-empt an assemblage of shops, offices and private dwellings. Any attempt to upset this balance, which is an essential factor in the ideal of civic architecture, is a sign of retrogression and of decadence in the artistic spirit itself.

While a building of moderate size, if designed without reference to its neighbours, can upset the architectural balance of a street, a commercial skyscraper must inevitably upset the architectural balance of a whole city. The problems of traffic congestion, when as many as five thousand people simultaneously emerge from a single building, are alone sufficient to make the Americans cry halt. As far as the development of civic design is concerned the skyscraper is a *cul-de-sac*. If a building is monopolised by a single business firm and is made to tower over innumerable other buildings set quite close to it, then the harmonies and decencies of civic design have not been observed, and no matter how beautiful the structure may seem when judged as an individual unit, its authors will not be able to disguise the essential vulgarity of the conception.

A utilitarian structure which happens to be very large *on plan* may be quite innocuous providing that it keeps comparatively low. In an industrial age such as the present, it would be out of the question to attempt a scale of architectural importance based on the size of the *plan*. A factory or warehouse may legitimately occupy ten times the area of a cathedral without in the least degree seeming to compete with the latter. But one skyscraper in the City of London would be enough to deprive St. Paul's of its essential civic character.

In architectural design the size of the human unit must always be borne in mind. It is nowhere more necessary to observe this maxim than in the determination of the scale of shop fronts, for here, not only is the tendency to undue magnification of parts strongly encouraged by those who seek to impress us with the importance of commerce, but the scale adopted is immediately set in relation to a constant stream of vehicles and traffic.

A common mistake in the design of shop fronts is to increase the size of the window openings until all sense of the human figure is lost. Such a building may have so few subdivisions that it does not give any appearance of its real size until it is contracted with the traffic of the street which it makes to look very small.

Another type of shopfront consists of a frame around one immense glazed aperture, and it remains to be seen whether any effectiveness possessed by such a front is not derived from contrast with more restrained neighbours.

The obvious solution to this problem of the shop front is that it should display a simple harmony of scale without any violent breaks

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whatsoever. The ground floor height should be reasonable—12 to 15 feet seems high enough for all practical purposes—and the storeys above can then adapt themselves to this general scale by a gradation, if necessary, between a comparatively small height of room towards the top of the building and a more generous one lower down. It is notable that shops conspicuous for the height of the first floor level are greatly improved in appearance by an awning which comes down to perhaps eight or nine feet above the pavement, thus providing a dimension for immediate contrast with the scale of the human figure.

Buildings may show a lack of urbanity not only in form but in colour. The peculiar danger of applying an obtrusive colour scheme to buildings is that its proper formal emphasis may be disturbed thereby. A delight in colour irrespective of its resultant accentuation is entirely unintelligent. The reason is that an urban building is a member of a society, and a certain measure of uniformity of colour is absolutely necessary if buildings are to form a mature architectural society.

In a modern town there is colour not only in the shop windows but in the clothes of passers-by and in many of the vehicles. Above this miscellany of movement and colour there should be a background, not uniform in tone, but one which provides a reposeful background to the scene below. For this reason it is much to be deplored that some shopkeepers think it necessary to display their goods on upper floors as well as on the ground floor, and it is questionable whether any commercial advantage accrues from such a practice.

EDWARDS, TRYSTAN *Good and bad manners in architecture: an essay on the social aspects of civic design*. 1924 pp. 1-43 (S)

The layout of buildings

The physical order and seemliness of towns is of inestimable importance to civilisation. An architecturally ordered town is a symbol of an ordered society: it is the material embodiment of the very fact of communal association. As such it is a continual incitement to further co-operation. On the other hand, a disordered town is an obstacle to the development of the civic idea. Even if a town is *functionally* well-ordered, the citizen cannot readily appreciate that. The sewerage system may be a marvel of technical perfection, but it can arouse little or no response in the soul of the average townsman. Mere organisational planning has also no very deep appeal. The citizen cannot *see* it vividly, and the adage that seeing is believing is particularly true in social psychology. That is why *visible* order in the material aspect of the town is so very important.

Whether our rebuilt or new towns are to be ennobling rather than degrading depends then on the quality of their building. Unfortunately, experience has shown that it is easier to endow a town with fine spaces and fine ground patterns than with fine buildings. The principal reason for this is that, in the last 100 years, architects, builders and building owners have been unwilling to accept the same degree of discipline in the third dimension of building as has gradually been imposed on them in the two dimensions of site planning, and if our future towns are to have greater architectural seemliness, much greater discipline in this direction will have to be imposed. And this discipline will mean, principally, acceptance of the axiom that the street is the urban unit of design. Each street must be designed and judged as a finite composition, a single urban scene or picture.

For this, acceptance of control over height and materials is a first necessity but, for full success, more may be needed. The success of the street will be affected by the relationship of the buildings and the spaces between them and by the way the spaces are used.

The practice of physical detachment of houses in a street has been fully tested between the wars and is obviously disastrous to the architectural appearance of our towns. I believe we must return to terrace building, but the greatest care must be taken to avoid the faults which led to condemnation of the terrace street in the past. Avoidance of monotony in a street is secured by repeating the component of design only for so long as it can hold the interest of the beholder—and repetition of a mean component becomes wearisome much sooner than that of a fine component. The street should be kept comparatively short and domestic streets especially should be short and intimate.

Where long streets are necessary, a general overall coherence will be needed but a sub-unit of design—such as the street block—can be used to hold interest in the detailed design.

Continuity of height and harmony of materials are the most important factors in achieving overall coherence within the street. Variation of height should be used over larger units than that of the individual street, and might be obtained by the grouping of, or giving, chosen situations to higher buildings.

In my view, a vista should be adequately terminated, but this doesn't mean that each street must have a 'stop'. Generally it means no more than avoiding anti-climax. Sometimes the view may be onto an open space; more generally, it will be closed by buildings. The spectacular vista should not often be attempted but it may sometimes be justified. Important buildings, such as civic buildings, churches, theatres, etc., should be sited so that their social importance is plain, and so that the streets leading to them, or in which they stand, are enhanced by their dominating situation. There is also the elementary

but important point that in designing any street the effects of ground levels on the vista should be carefully studied.

The proportion between building height and street width is another matter which is of importance to the design of streets. There is a fair measure of agreement that a proportion approximating to a square is the least likely to be satisfactory in appearance, and that there are dangers both in extreme narrowness and extreme width of street in relation to building height.

The danger of monotony does not occur only in individual streets. Lack of variety between streets may make the whole town wearisome. In this, formal composed streets have a great advantage, for their composition may be varied by using different architectural treatments, different widths, different forms of planting and so on, and the town may thus contain a pleasing variety of street design and effect. It is not suggested that our towns should be made monumental and that their layouts should consist of symmetrical patterns. I believe that they should not. I advocate the more intimate planning which I believe is nearer to the English tradition and, with the emphasis on the single street as the unit of design, the temptation to force the plan of the town as a whole is comparatively easy to resist—and the concentration on pattern is the most seductive danger that besets the planner. Traffic roads will have to be bold and direct, but in the living quarters which lie between these roads the logical layout, in my view, will be a free rectangular layout intimate in character and modest in scale. In contrast to this sense of enclosure an occasional sense of spaciousness will also be attractive.

The desirability of maintaining a sense of enclosure applies in a village as well as a town. Many villages in my part of the country are entirely enclosed, built solidly round a square or green. I think this should apply in the future, for in the country, where the views are wide-ranging, a limitation of view is satisfying by way of contrast. There are differences in architectural character between existing villages and towns, but these arise chiefly from the greater simplicity in village layout, craftsmanship and use of natural features.

SHARP, THOMAS *Some architectural aspects of town and country planning. Town Planning Institute: Report of the Town and Country Planning Summer School. 1943 pp. 77-83 (S)*

Work of the National Buildings Record

A conference of delegates of 18 societies and public bodies interested in the recording of English architecture was held at the Royal Institute of British Architects on 18th November, 1940, to discuss the

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formation of an organisation for a comprehensive survey, in view of the threat to buildings from enemy air raids. The conference appointed a committee of four to consult with Lord Reith, Minister of Works and Building, and to promote a scheme which could be put into operation at once. Lord Reith promised the support of his Department and his assistance in obtaining a Treasury grant.

An Advisory Council was formed which held its first meeting on 31st January, 1941, and appointed a director and deputy director, who began work in February.

Aims of the Record, as set out in the original memorandum, were:

1. The maintenance of a central index or register of records of buildings.

2. The recording of war-damaged buildings.

3. The recording of buildings before they are damaged.

In practice, the procedure fell into 3 main categories:

1. The preparation of lists of buildings of merit and their classification.

2. The collection of information of existing records, and its transference to the central index.

3. Making new records of buildings and of war damage.

In their listing of buildings, the Record was assisted by the appointment, by the Ministry of Works and Building, of architects to report on damage to buildings of merit throughout the country.

In its compilation of records, the Record was assisted by having placed at its disposal the holdings of the Architectural Graphic Records Committee, and the Conway Library of photographs belonging to the Courtland Institute of Art.

Local committees to further the aims of the Record were set up in a number of counties.

By April 1945 the Record's total collection of photographs and drawings numbered about 247,000.

The Record is represented on the Advisory Committee set up by the Minister of Town and Country Planning in connection with the listing of buildings of merit under the Town and Country Planning Act, 1944.

*National Buildings Record. First Annual report. 1942;
Fourth annual report. 1945 (S)*

Labour allocation for 12 post-war years

Tentative estimate of twelve years' building programme for a labour force raised to 1,500,000 in the fifth year [see pages 16 and 17].

Number of building workers in employment (thousands).

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	1st Year	2nd Year	3rd Year
I. For Current New Housing:			
For additional families - -	25	25	50
For normal replacements - -	15	15	20
For improved rural housing -	15	15	20
For slum clearance (new schemes)	—	—	15
For prevention of overcrowding -	—	—	150
Allowance for migration and re-planning - - - -	—	—	—
Allowances for larger houses -	—	—	—
	55	55	255
II. For Overtaking Arrears of House-building etc.:			
For overtaking arrears - -	—	—	—
For replacing bombed houses -	—	—	—
III. For Educational Building:			
For completing Hadow programme and reducing size of classes - - - -	—	40	50
For raising school age to 15 - -	40	50	—
Young people's colleges (1 day a week) - - - -	—	40	45
Young people's colleges ($\frac{1}{2}$ -time) -	—	—	—
Raising school age to 16 - - -	—	—	—
Technical colleges and universities and training of teachers - -	10	10	10
Current needs and renewals - -	—	—	—
	50	140	105
IV. For Other New Buildings:			
For public and public utility building - - - -	25	50	100
For industrial and commercial building - - - -	25	50	50
For agricultural building - - -	10	20	25
For replacing bombed buildings other than houses - - - -	10	20	20
	70	140	195
V. For Repairs and Maintenance:			
For normal repairs and maintenance - - - -	400	400	400
For arrears of repairs and maintenance - - - -	—	40	195
	400	440	595
VI. For Temporary Building:			
For temporary houses - - - -	100	100	—
For other temporary building -	25	25	—
	125	125	—
Total - - - -	700	900	1,150

[Each item in the foregoing estimate is qualified by references to the text of *op. cit.*]

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4th Year	5th Year	6th Year	7-12th Year	Total	
55	55	55	55	595	% 3·67
70	100	125	125	1,095	6·76
30	25	—	—	105	0·65
45	45	45	45	420	2·59
150	150	150	125	1,350	8·34
—	20	45	45	335	2·07
—	50	50	50	400	2·47
350	445	470	445	4,300	26·55
200	200	200	200	1,800	11·12
—	20	60	60	440	2·72
200	220	260	260	2,240	13·84
70	40	—	—	200	1·23
—	—	—	—	90	0·55
—	—	—	—	85	0·52
6	6	6	6	54	0·33
—	10	20	20	150	0·93
10	10	14	14	148	0·91
14	34	50	50	398	2·46
100	100	90	90	1,125	6·93
100	120	120	120	1,235	7·63
75	100	100	100	1,000	6·17
25	25	25	25	280	1·73
—	—	—	—	50	0·31
200	245	245	245	2,565	15·84
400	425	435	460	5,220	32·21
200	65	—	—	500	3·09
600	490	435	460	5,720	35·30
—	—	—	—	200	1·23
—	—	—	—	50	0·31
—	—	—	—	250	1·54
1,450	1,500	1,500	1,500	16,200	100

COLE, G. D. H. *Building and planning*. 1945 Table xv (E)

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Relative numbers of different kinds of buildings

1921 Census. Buildings of various types per 1,000 private houses.
England and Wales.

Type of Town	Blocks of flats, tenements, etc. (1)	Hotels (2)	Shops (3)	Offices, factories, ware-houses, work-shops (4)	Institutions (5)	Places of worship (6)	Places of Amusement (7)
Industrial towns:							
Population—							
Over 200,000 -	(Figures	0.40	99.7	28.4	1.04	3.43	0.62
100,000–200,000 -	de-	0.45	93.2	22.8	0.75	3.56	0.58
50,000–100,000 -	pendent	0.34	88.2	20.0	0.75	3.73	0.75
25,000–50,000 -	on	0.15	82.9	20.1	0.54	4.42	0.99
10,000–25,000 -	locality)	0.53	79.8	20.2	0.78	4.80	0.78
Country market towns:							
Population—							
Over 20,000 -	1.53	1.49	111.1	28.0	4.20	4.41	0.56
8,000–20,000 -	0.52	1.47	110.0	39.9	3.78	7.26	0.72
Under 8,000 -	0.36	2.24	126.9	46.0	4.97	9.35	0.99
Health and pleasure resorts:							
Population—							
Over 40,000 -	10.80	2.90	124.2	23.0	4.55	4.59	0.91
20,000–40,000 -	6.93	3.60	112.9	20.5	5.70	4.99	0.88
10,000–20,000 -	6.87	5.08	116.0	29.9	4.92	7.53	1.74
Under 10,000 -	2.60	6.55	104.0	20.6	6.30	9.78	0.72
Suburbs:							
Population—							
Over 20,000 -	22.18	0.42	86.0	8.1	1.98	3.09	0.51
Under 20,000 -	10.10	0.50	71.7	10.4	2.92	4.35	0.43

Notes: (a) Each figure given is the average of figures for ten towns.

(b) Col. (1). Figures for industrial towns are not given as they are subject to fluctuation according to the number of towns in Northumberland and N. Durham which are included. In these counties flats or tenements are very numerous.

(c) Col. (2). Hotels of a residential character only. Inns and public houses in which the business is primarily that of retailing liquors are classed with shops.

(d) The approximate number of buildings per 1,000 persons can be obtained by dividing the figures in the Table by 4.85.

DODD, K. S. *A ready-reckoner for planners. Town Planning Institute Journal Vol. xx No. 7 1934 p. 176 (E)*

Design of buildings in rural areas

'New buildings should use to the full all the possibilities which new materials and new building techniques have made available. This, however, does not mean that no regard should be paid to the prin-

ciple of designing a building in harmony with its surroundings. On the contrary we believe that the achievement of such a harmony is a cardinal requisite of all good designs, though the harmony we have in mind arises out of a fundamental consideration of the building in its setting and not out of narrowly conservative or sentimental considerations.

'... We feel we must ... make some brief reference at least to the principal considerations which affect a building's possibility of successful assimilation into its landscape. These considerations are the building's outline or silhouette, and the quality, colour and character of its materials .

'A landscape, though itself a thing of curves and masses, of rounded hills, and, even where there are no hills, of rounded trees, can absorb into its form unrounded masses and straight lines so long as these are not too vertically insistent and so long as they are well secured within the surface of the landscape and can be regarded as a development upon that surface and not an interruption of it. An occasional strongly vertical element may sometimes, of course, by its very contrast, be highly successful, as, for instance, are the towers and spires of churches, particularly in a flat landscape. This avoidance of vertical emphasis, except for certain buildings, is particularly necessary for buildings erected against a skyline. In an undulating country, it is comparatively easy to avoid building on the skyline: buildings can, and generally should, be situated away from the skyline ridges, where they will dominate the surrounding country. But in level country it is only in the lee of a wood that the skyline effect can be avoided, and it is particularly desirable there that a softness of outline, a horizontal emphasis, should be maintained. And of all skyline effects to be avoided the chief is that which is created by the setting of identical blocks of houses at identical distances apart, such as occurs in much modern housing. We consider that, as regards scenic effect at any rate, building in block formation is much to be preferred to building in scattered detached units.

'On the question of the quality, colour and character of building materials in the countryside we have received much contradictory evidence. Many people who have the maintenance of the beauty of the countryside very much at heart sincerely believe that only buildings of "traditional" and "local" materials should be permitted to be erected in country places. While we have every sympathy with the desires which prompt such belief, tradition is not a fixed and final thing. If it is alive—and it is only worth anything when it is alive—it must be subject to growth and development. Any attempt to prevent the use of new materials and new types of design arising out of new building techniques based on those new materials, or arising merely out of changes and developments in human needs, is bound in

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the end to be futile: and if it were not it would mean the end of all architectural development whatsoever.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 207 (E)

BUILDING SOCIETIES

Finance, number, etc.

Years	Number of Societies	Number of Members	Amount advanced on mortgage during year
		(a)	£
1924	1,112	1,000,988	40,584,606
1925	1,092	1,129,455	49,822,473
1926	1,064	1,257,400	52,150,941
1927	1,054	1,416,456	55,886,903
1928	1,035	(a) 1,130,066	58,664,684
1929	1,026	1,265,329	74,718,748
1930	1,026	1,449,432	88,767,426
1931	1,013	1,577,905	90,253,133
1932	1,014	1,692,167	82,142,116
1933	1,013	1,747,980	103,195,663
1934	1,007	1,857,592	124,558,507
1935	999	1,938,684	130,947,205
1936	985	2,010,615	140,310,068
1937	977	2,083,939	136,855,953
1938	971	2,152,600	137,019,678

(a) Share investors only in 1928 and subsequent years.

Years	Share capital	Due to depositors and other creditors	Balance due on mortgage	Other Assets
	£	£	£	£
1924	108,983,304	28,107,255	119,744,926	25,144,779
1925	127,827,111	32,361,921	145,857,119	23,339,539
1926	147,739,010	35,711,393	171,220,815	22,635,219
1927	172,818,111	38,567,925	197,748,150	25,597,932
1928	213,235,101	41,382,801	227,532,832	40,931,949
1929	250,224,511	46,811,348	268,141,456	44,604,427
1930	302,784,697	50,756,154	316,313,559	54,851,402
1931	341,794,518	57,338,864	360,176,859	59,008,511
1932	380,855,963	66,778,093	388,377,535	80,956,513
1933	395,474,846	81,535,713	423,512,027	77,557,567
1934	424,276,199	104,091,137	476,205,394	79,385,216
1935	447,233,526	124,183,546	529,662,373	72,343,422
1936	480,717,092	141,272,635	586,632,317	69,555,781
1937	517,484,014	154,824,577	636,384,558	73,996,001
1938	548,262,942	169,025,165	686,775,808	72,120,850

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938 Cmd. 6232 1940 Table 196 (E)

CANALS

The future of inland waterways

The inland waterways system as it now exists can be broadly divided into two categories, estuarial waterways and navigable rivers and, secondly, the artificial canals. The former have been maintained in reasonable condition but the latter, though maintained in workable condition before the war, are below the standard of maintenance needed for efficient working. The Government have a responsibility in this matter. During the 1914-18 war, control of waterways was belated and de-control premature, and during the early stages of the present war, despite previous submissions by the Canal Joint Committee, the waterways were not supported, to the serious detriment of maintenance.

To remedy this state of affairs it is recommended that waterways regularly used for the carriage of traffic should be restored and maintained to provide adequate facilities for the largest craft now in use on the respective waterways, that further bank protection should be provided to enable power-driven craft to operate efficiently, and that locks and bridges which hamper the use of the largest craft should be reconstructed. In addition, modernisation of terminal facilities is essential. Such proposals need legislation and financial provision on a large scale.

The carrying section of the industry comprises three statutory carrying companies and several hundred units varying in size from owners of single craft to companies owning craft, terminal facilities and warehouses, working on particular routes and often specialising in particular traffics. These units can be broadly divided into those working to and from ports and those working almost wholly within the artificial canal systems. In the main they are not common carriers. The size and the type of craft vary according to lock dimensions and depth of water on the various systems.

Turn-round is one of the main factors in the economic working of craft. A quick turn-round would be aided by increasing the proportion of power-driven to dumb craft, and by the provision of winches and derricks on larger power-driven craft so that cargoes can be discharged at berths where shore cranes are not available.

Cranes, hoists and transit warehouses should be modernised, and other improvements made at terminals.

Standard conditions of carriage should be formulated to meet a demand by traders in general.

The closest relationship should be established between undertakers and carriers to avoid overlapping in the provision of craft or terminal facilities. Consideration should be given to voluntary

amalgamations, formation of holding companies, or establishment of working arrangements to control the policy of carriers who carry similar traffic in the same area, with a view to more efficient working.

Almost all the artificial waterways were constructed by private enterprise without State assistance. The expenditure now required for modernisation is beyond the capacity of the present undertakers and assistance should be given by the Government. The industry has in the past felt the need for a strong Division of the Ministry of Transport to look after its interests, and has welcomed the setting up of such a Division during the war. It is urged that the Division should be permanently retained.

It is desirable that in matters concerning the location of industry the inland waterways industry should be consulted, and that there should be close liaison between the Inland Waterways Division of the Ministry of War Transport and the planning authorities. It is very important that industries concerned with bulk commodities should be located adjacent to waterways, as this may have a great bearing on the future traffic available for waterways. The facilities which canal water offers for industrial purposes should be borne in mind. As one of the major traffics on canals is coal from canal-served collieries, the Central Electricity Board and other large coal consumers might well site new power stations alongside canals.

Conditions should be created in which all forms of public transport should be able to operate, if they are efficient, with a reasonable margin of profit. If a satisfactory solution can be found to the problem of competition between rail and road transport, and the rates, services and obligations of these two forms of transport can be correlated, then the rates structure of inland water carriage would tend to fall naturally into line. No fair comparison can be made of the costs of various forms of inland transport, but the ultimate test of any rates structure is whether it enables each transport system to attract and maintain an adequate net revenue. In the main, the application of the railway rates structure and charges for conveyance by water, which existed at the beginning of the war, were uneconomic.

The inland waterways carriers are opposed to any scheme for the allocation of traffic in the sense that traders must consign and operators must carry certain classes of merchandise. They believe that once the rates structure is settled, traffic should flow along the routes best suited to the trader concerned.

Canal Joint Committee. Post war policy for the inland waterways. 1945 (S)

CANALS

Recent history of inland waterways and proposals

Canals and inland waterways in Gt. Britain convey about 5 per cent. of the tonnage carried by the railways. Canal traffic has gradually declined, as the following figures show :

<i>Year</i>	<i>Tons carried</i>	
1924	16,500,000	
1930	13,000,000	
1936	14,000,000	
1938	13,000,000	
1939	11,000,000	<i>approx.</i>
1940	„	<i>each year</i>

For the first 2½ years of the war the Government neglected the canals, which lost men to the Forces and were unable to maintain their waterways and craft properly. During the first half of 1943 the canals carried just over 5½ million tons and this is probably the maximum effort of which they are capable under war conditions, as they were being given all the traffic they could carry irrespective of cost.

Canals ought to carry 20 million tons a year in order to provide a reasonable revenue and if they are to be kept going must be better organised and more efficient than in the past. The war-time control exercised by the Ministry of War Transport is encouraging greater co-operation between canal owners and operators.

Canal transport, particularly on narrow canals, is not more economical than road or rail, but it can be so on wider canals and estuarial water-ways. It is a great advantage for incoming cargoes to be discharged overside into barges, without payment of dues, which can then take the goods into the heart of the country. The Severn, Thames, Humber, and Mersey offer advantages from this point of view. Coal from canal-side collieries to factories, power-stations and gas works is another suitable traffic.

Wartime operation will have revealed the commodities and flows of traffic upon which it will be desirable for the canals to concentrate in the future. The Central Committee and its regional branches, which have discussed many problems of common interest to canal operators, should be continued.

There are about 60 canal undertakings in Gt. Britain of which 35 belong to the railway companies. Just over 2,100 miles of canal are navigable. These canals fall into two groups: those which will take barges up to 14 feet in width and 60-150 tons capacity according to length and draught; and those taking narrow boats 7 ft. wide and of 20-30 tons capacity.

In each case the load varies according to the minimum depth encountered on a through journey. Some of the barges in each category

are horse drawn and others self-propelled. Normally, narrow boats work in pairs, the motor boat towing a dumb boat or 'butty'.

The following figures [on the opposite page] show mileage of different kinds and indicate tonnage and type of goods carried.

Apart from the Grand Union and one or two others, there has been no attempt to standardise through routes or establish through rates from one system to another and sometimes a narrow intermediate length prevents the through working of large barges. There has been a surprising lack of co-ordination in the canal industry despite the depression from which it has suffered.

The report of the Royal Commission on Transport in 1931 recommended voluntary amalgamation of canals but pointed out that the chief obstacle seemed to be the unwillingness of the railway companies who owned or controlled important sections of through routes to amalgamate with independent canal companies. Since in many cases the railways had become canal owners unwillingly, the Commission did not think it would be a hardship if the railways ability to resist such amalgamations was curtailed.

It may be desirable after the war to release all canals from railway control and place them under those companies best qualified to manage them. In any case, the whole canal system should be pruned and those canals which are no longer serving a useful purpose should be closed.

In only a few cases do canal companies convey traffic although two statutory bodies have formed subsidiary companies to do so. Most carrying is done by non-statutory companies or individuals, called bye-traders, who pay toll to the canal companies. Bye-traders can operate road transport but not canal companies who act as carriers on their navigation. These canal companies should be given similar powers to those possessed by the railways under their Road Transport Acts of 1928.

All the bodies who have investigated the canal question have emphasised the need for consolidation but so far the Government has done nothing to aid this process, which can only at present be accomplished by Private Bill procedure which is financially impossible for the average canal undertaker. The Royal Commission on Transport recommended that the Minister of Transport should be empowered to authorise by Order the acquisition or lease by one company of the whole or part of any other undertaking and also the acquisition at a fair rate of land needed for improvements and the raising of money for new capital expenditure.

Such legislation, coupled with loans at a low rate of interest for worth-while improvements, should give the industry a fair chance to work out its own salvation.

CANALS

Table 1. Canals and inland navigations open for traffic in 1940 :

	<i>Barge canals</i>	<i>Narrow-boat canals</i>	<i>Total miles</i>
Railway-owned -	309	305	614
Other than Rail- way owned -	969	535	1,514
	1,278	840	2,118

Table 2. Traffic carried on waterways :

	<i>1924 ('000 tons)</i>	<i>1938 ('000 tons)</i>
Railway-owned -	2,718	1,479
Other than Railway- owned - -	18,602	15,407
	21,320	16,886

Table 3. Tonnage originating on the principal waterways :

	<i>1924 ('000 tons)</i>	<i>1938 ('000 tons)</i>
Coal, coke, patent fuel, peat - -	8,328	6,156
Building materials (other than wood)	1,256	1,068
Manures - -	1,103	467
Wood - - -	292	542
Machinery - -	34	27
Raw materials -	1,517	871
Industrial products -	1,489	1,112
Agricultural produce and foodstuffs -	1,452	1,340
Liquids in bulk -	660	1,329
Unclassed - -	326	38
	16,456	12,952

*Modern Transport. A plan for post-war transport. 1944 pp.
35-42 (S)*

CAR PARKS

Car parking needs and capacities

An investigation recently carried out by the Retailers' Advisory Committee on Town Planning found that in provincial towns the capacity of car parking facilities, either in car parks or streets, was related to the frontage of main shopping streets in the average proportion of 9 car parking spaces to each 100 feet run of shopping frontage.

There was, however, wide variation between towns, and the investigators concluded that adequate provision for shoppers' cars might require 20 car parking spaces for each 100 feet run of main shopping frontage.

These figures should be treated with some reserve, for much depends on the class of shop concerned.

In considering car parks, we have chiefly in mind those provided by the local authority, for the use of which a small fee will generally be charged. Local authorities are empowered to provide car parks of all kinds under the Public Health Act, 1925, and the Restriction of Ribbon Development Act, 1935. The adequacy of car parks clearly depends on their disposition as well as their number. The public may reasonably expect that, if kerbside waiting is restricted, car parks will be available within a short distance of shopping and other centres. It will usually be preferable to provide a greater number of well-dispersed small car parks rather than a few large ones.

It is found that the aisles in car parks take up rather more than one-third of the space available for parking and, together with approach roads, take up about 45 per cent. of the site. The angle at which cars are parked has little effect on the gross area needed per car. With the open access system a gross area of about 200 square feet should be allowed per car.

In estimating the total accommodation afforded by a car park regard must be had to the total number of times each day that a bay will be used. A large car park in the centre of Birmingham has a use-ratio of 2.07.

In other towns the user is less frequent and it is clearly a matter in which local conditions are the determining factor.

Car parks are often desolate in appearance, and much could be done to improve them by the judicious planting of trees and shrubs.

More might be done to provide public car parks otherwise than at ground level. Underground car parks might be provided below open spaces; or in combination with such a structure as a seaside promenade, or—subject to suitable precautions—in the basements of buildings.

CAR PARKS

Access to car parks should generally be from lightly trafficked streets, and the immediate approaches should be laid out in a manner which will facilitate entrance and exit.

Mechanical methods have to some extent been adopted for parking vehicles in densely built-up areas, and it is claimed that by these methods it is possible to use up to 90 per cent. of the floor space for the storage of cars—as against 55 per cent. with open access system.

The methods are expensive and depend on a high use-ratio if they are to be financially successful.

Section 17 of the Restriction of Ribbon Development Act, 1935, empowers a local authority, in certain circumstances, to require that in new buildings of various classes provision shall be made for the loading and unloading of vehicles in a manner which will limit interference with traffic on adjoining streets.

We consider it reasonable that new buildings likely to attract large numbers of vehicles which will probably remain stationary for a considerable period should provide accommodation for them off the highway, and we consider local authorities should be empowered to take effective action in this matter.

We regard the question of car parking as one of the first importance in view of the increasing difficulty of finding sites in large towns to meet probable post-war requirements.

In such towns we do not look to open car parks as being the final solution, and strongly recommend that the Ministry of Transport should cause an examination to be made of mechanical and other methods of parking and all questions of the layout of car parks, so that good advice on the subject may be given to local authorities.

More attention should be given to the provision of parking facilities for pedal cycles, which are often precariously parked, and a source of obstruction and even danger. Sites equipped with stands or racks and protected from the weather should be provided in appropriate places such as in squares, public gardens, parts of car-parks, or the forecourts of shops.

A combined parking meter and locking device has been widely used in Germany which overcomes the danger of cycles being stolen from parks not controlled by an attendant.

Ministry of War Transport. Report of the Departmental Committee. Design and layout of roads in built-up areas. 1946 paras. 413–430 (S)

Car parking needs in central areas

There are approximately 30 million earning units or families in the U.S.A. and more than 30 million cars. This makes about one car per

family. To a considerable extent streets, designed for the movement of vehicles, are now being used for their storage.

A proposed garage in San Francisco for 1,700 cars is expected to cost about one thousand dollars per car stall.

To transport the daily working population of an average city into the central areas by car would require garage storage capacity at least equal to that needed for business; that is, it would double the cubic capacity needed in central area buildings. It is estimated that modern business buildings provide an average floor area of 150 sq. ft. per worker, while the space needed per car in the most modern ramp or lift garages is about 240 sq. ft. Thus, crediting cars in city traffic with an average loading of 1.75 passengers, the space needed for car storage per passenger is about 140 sq. ft.

One of the best methods of increasing off-street parking space is to insist that building owners or other land users who create a parking problem shall solve that problem at their own expense.

Much of the difficulty of the parking problems arises from attempts to solve it in isolation. A system of super highways is proposed for Chicago, but no programme has been put forward to deal with the cars which will come off the super highways. The blighted areas of about 50 sq. miles surrounding Chicago's business area must be rebuilt with suitable housing. At 80 persons or 20 families per net acre, 37,000 people could be rehoused per net sq. mile or about 1½ millions in all. If those people would be content to walk to work or use public transport, the down-town parking problem could be largely solved, while at the same time largely solving the down-town economic problem.

*Town Planning Institute Journal Vol. xxviii No. 3 1942
pp. 130-131 (S)*

Provision of car parks in central areas

Pre-war information collected by the Public Roads Administration shows that 3 out of 4 cars and trucks on all rural roads either began or ended their journeys in a city with the downtown area as their main origin or destination. Other studies show that one half of all pre-war motor travel was entirely on city streets, and a third of all motor trips began and ended within city limits.

The motor vehicle is therefore almost entirely a short-trip vehicle and most trips are to a city destination.

We have made streets and highways a public responsibility and adequate parking facilities must also become a public responsibility. If the parking problem is not solved, trade and land values in central business districts must, in most cities, continue to decline.

In 21 years motor traffic mileage has increased tenfold and we are nowhere near the end of the increase.

The motor car has made possible a spreading out of cities, and city business centres can draw customers from over a much wider area if access and parking are adequate. As the number of cars grew, so did congestion, until larger cities had to prohibit parking in main streets in rush hours. Thus as demand rose, parking space available declined. Before the war, private cars carried 81 per cent. of all persons entering the downtown areas of cities of less than 100,000 population; 75 per cent. in cities between 100,000 and 500,000; and 41 per cent. in larger cities.

Towns with a population of 50,000–200,000 usually have a downtown district with a substantial acreage of blighted land around it, and the central business district is seldom more than 5 blocks wide.

Permanent parking space could be obtained by buying suitable plots around the central district, and within easy walking distance of it. In addition, there is often idle land in medium-sized towns behind downtown buildings, and town planning regulations might require such buildings to provide, after a certain date, their own loading spaces and a certain number of parking spaces, based perhaps on the floor area of the building.

The 'downtown-fringe' of car parks is ideally suited to towns where they could be placed within 300 yards or so of the main central area buildings.

If possible the car parks should connect with a ring road round the central area.

The downtown-fringe plan cannot be applied in the same way to cities of 500,000 population or more. In such cities, car parks on the fringe are not within easy walking distance of central area stores and need to be planned in conjunction with underground railway, tram, or bus routes. Before the war several cities began experiments with such parking and transit plans.

In such cases the combined charge for parking and for bus or rail travel must be small and the transport route fast and direct.

Parking space will, however, still be needed in central areas of larger cities and in these areas multiple-deck parking becomes a paying proposition. A number of these have been built both by retail firms for their customers' cars and as independent ventures.

The open wall type, which cuts out heating and ventilating problems, is economical, particularly if customers park their own cars. A department store uses its flat roof, approached by a ramp, for parking customers' cars and this idea may be developed.

A number of car parks in city central areas in America have been financed by groups of local shops or department stores. These have

both paid their way and arrested a decline in neighbouring land values.

In general, the self-service car park is the most economical with one attendant to issue tickets and point out vacant spaces.

Where parking in streets is permitted for short periods, the parking meter is a more effective method of enforcement than marking of tyres by policeman, and also brings in revenue. A single policeman can then spot overtime offenders by glancing at the flags of the meters. The prohibition of street parking at rush hours not only eases traffic but also, where time limits are not enforced, prevents business men from monopolising a space for a whole day.

MICKLE, D. GRANT *Solutions to local parking problems*.
1944 (S)

Car parking needs of shopping areas

The car parking needs of a town are mainly determined by the number of shoppers who use cars. Local residents use cars less than residents in the surrounding country who shop in the town. The ratio of local to total shopping population varies widely; for every 10 customers living locally the number living elsewhere is about 6 in Chester and 23 at Aylesbury.

Another important factor is the extent of car ownership among the population concerned. In 1937 the number of cars licensed per 100 families was 15 in Great Britain as a whole, 11 in Glamorgan and Monmouthshire and 26 in Buckinghamshire and Oxfordshire. In the decade 1928-1938 car ownership more than doubled, a trend which will certainly continue in the future.

Parking needs cannot be adequately met except by the provision of special car parks, and shoppers will not use car parks unless they are conveniently placed. They should be near the main shopping centre and several small car parks are preferable to one large one. This usually will mean the use of valuable land, but convenient parking facilities are necessary for a shopping centre to be successful. Furthermore, it is the general experience (outside central London) that conveniently placed car parks earn a profit over their running costs and interest charges on capital with charges of 6d. for two hours or even longer.

The convenience of location of a town's car parks can be judged by the average number of cars parked per working day, expressed as a percentage of the normal capacity of the car park. In 1938, this 'load factor' was 42 per cent. for Gloucester and Newport car parks. At Reading, in 1942, it was 130 per cent. A 'load factor' of not less than 50 per cent. should be aimed at.

The area needed per car in a car park varies according to levels and shape of the site and access to it. 100 to 150 square feet per car indicates the general variation.

There is no constant ratio between car parking needs and the number of main street shops or the feet run of frontages. The number of cars for which parking facilities are needed per 100 feet of main street shop frontage is unlikely ever to be less than 5, while provision for anything over 20 is likely to meet all normal needs.

Based on an investigation by O. W. Roskill.
Retailers' Advisory Committee on Town Planning. The planning of shopping areas. 1944 Appendix B (S)

CENTRAL STATISTICAL OFFICE

Proposal to set up a central statistical office

The Government intend to establish a small, permanent central staff to measure and analyse economic trends. During the first post-war years the responsibility of this staff will be very heavy; for many of the decisions needed to carry out the Government's employment policy will depend on quick and accurate diagnosis. A slump may develop with fearful rapidity: in 1920-21 unemployment rose from 5 to 15 per cent. in four months.

Success will depend on skill in putting general ideas into day-to-day practice. It will, therefore, be necessary to obtain exact quantitative information about current economic movements.

The following are the principal classes of statistics (in addition to those available before the war) which must be obtained for the efficient operation of an employment policy:

(i) Statistics of employment and unemployment, including quarterly or monthly statements of present and prospective employment in the main industries and areas of the country, based on returns from employers.

(ii) Regular information relating to savings, projected capital expenditure by public authorities, and, as far as possible, by private industry.

(iii) An annual census of production showing the structure of the main groups of industries in the preceding year, including, *inter alia*, details of the quantity and value of output, stocks and work in progress.

(iv) Monthly figures of production, consumption and stocks, and, if possible, figures of orders in hand, based on sample returns obtained periodically throughout the year from large firms, trade associations, and public institutions.

CENTRAL STATISTICAL OFFICE

(v) Annual and quarterly estimates of foreign capital movements and balance of foreign payments.

It is also proposed to develop the annual White Paper on National Income and Expenditure by providing a much more complete analysis than has hitherto been possible of the constituent parts of the country's total expenditure.

*Minister of Reconstruction. Employment policy. Cmd. 6527
1944 paras. 81-84 (S)*

CLIMATE

Mean daily temperature

'Mean daily air temperature in Great Britain in degrees Fahrenheit during each month in each of stated districts, and in all districts together, 1881-1915, and deviation from mean 1938.'

Table continued on page 33

District	Jan.	Feb.	Mar.	April
Scotland: Eastern Counties - - - -	37.2	37.4	39.2	43.2
England: North-East Counties - - - -	38.2	38.8	40.7	44.4
Midland Counties - - - -	37.9	38.8	41.0	45.5
South-East Counties - - - -	39.4	40.1	42.1	46.7
North-West and North Wales - - - -	39.4	39.8	41.3	45.4
South-West and South Wales - - - -	41.0	41.1	42.8	46.5
Mean for Gt. Britain and Ireland: 1881-1915	39.2	39.6	41.2	45.2
Deviation of temperature for 1938 from Mean for 1881-1915 - - - -	+2.0	+1.3	+6.0	+0.7

Average rainfall

Table continued on page 33

District	Jan.	Feb.	Mar.	April
Scotland: Eastern Counties - - - -	2.57	2.24	2.48	1.85
England: North-East Counties - - - -	1.77	1.50	1.85	1.54
Midland Counties - - - -	2.13	1.85	1.89	1.73
South-East Counties - - - -	2.20	2.05	2.05	1.69
North-West and No. Wales - - - -	3.03	2.52	2.56	2.05
South-West and S. Wales - - - -	3.58	3.03	2.99	2.36
Mean for Gt. Britain and Ireland: 1881-1915 -	3.16	2.68	2.69	2.15
Rainfall for 1938 expressed as a percentage of mean for 1881-1915 - - - -	132	58	45	17

CLIMATE

Hours of sunshine in England

'The hours of sunshine actually recorded in the table below are averaged over the 10 years ending in 1923.'

Month	Average number of possible hours of sunshine per diem	Percentage of the possible duration actually recorded	Month	Average number of possible hours of sunshine per diem	Percentage of the possible duration actually recorded
January -	8 hrs. 20 mins.	10.2	July -	16 hrs. 3 mins.	33.3
February -	9 hrs. 53 mins.	16.3	August -	14 hrs. 32 mins.	36.4
March -	11 hrs. 47 mins.	21.1	September -	12 hrs. 39 mins.	37.7
April -	13 hrs. 46 mins.	34.3	October -	10 hrs. 40 mins.	27.7
May -	15 hrs. 29 mins.	41.5	November	8 hrs. 53 mins.	15.7
June -	16 hrs. 29 mins.	40.1	December	7 hrs. 53 mins.	9.9

THOMPSON, F. LONGSTRETH *Suggested regulations regarding density, proportion of curtilage to be built upon, and height of buildings. Town Planning Institute Journal Vol. ix No. 8 1923, p. 139 (E)*

May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Mean
48.2	53.7	56.4	55.8	52.3	46.5	41.1	37.9	45.7
49.4	55.2	58.6	58.2	54.5	48.6	43.1	39.5	47.3
51.0	56.8	59.8	59.0	55.1	48.3	42.7	39.2	47.9
52.2	57.7	61.1	60.9	57.3	50.8	44.9	41.3	49.5
50.5	56.0	58.7	58.3	55.1	49.2	44.0	40.8	48.2
51.6	56.7	59.7	59.4	56.3	50.6	45.6	42.8	49.5
50.3	55.7	58.4	58.0	54.7	48.8	43.6	40.5	47.9
-0.8	+0.4	+0.4	+0.9	+1.1	+1.0	+4.5	-0.8	+1.4

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938 Cmd. 6232 1940 Table 1 (E)

May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Total
2.24	2.13	2.87	3.15	2.24	3.27	3.11	3.11	31.26
1.93	2.01	2.52	2.60	1.73	2.95	2.32	2.28	25.00
2.09	2.20	2.44	2.56	1.93	2.91	2.52	2.76	27.01
1.77	1.89	2.17	2.32	2.13	3.46	3.07	3.11	27.91
2.28	2.40	3.03	3.62	2.76	3.82	3.66	3.74	35.47
2.24	2.36	2.95	3.31	2.80	4.57	4.22	5.00	39.41
2.28	2.36	2.85	3.28	2.61	3.72	3.63	3.89	35.30
137	130	121	87	107	146	144	112	108

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938 Cmd. 6232 1940 Table 2 (E)

COAL MINING

Decline of output and employment in coal mining

'But there was a reduction in employment far greater than the fall in output. The Mines Department publishes annually the numbers employed in the coal mining industry "above and below ground" and the following figures are taken from its annual reports. Comparing the two periods 1911-13 and 1935-37 (these are perhaps the best years available for comparison, for each of the two periods represented the last years of improving trade) it is found that while output fell by 15.7 per cent. employment was reduced by 28 per cent. Again, comparing the year 1937 with the year 1923, while output fell by 12.9 per cent. employment was reduced by 34.2 per cent. Finally, a comparison between the two boom years 1929 and 1937 shows that output fell about 7 per cent. and employment was reduced by over 17 per cent. It is clear from these figures that changes in the manner of producing coal were even more important factors than trade depression. Nor should it be forgotten that changes in the methods of producing coal include not only mechanisation but also concentration of production at the well-endowed mines and the abandonment of uneconomic mines.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940, para. 88 (E)

Comparative efficiencies of British and foreign industries

'Before the 1914-18 war the OMS [output per man-shift of saleable coal] in Britain compared favourably with that of nearly all major coal-producing countries other than the United States. In particular it was higher than in the Ruhr which was Britain's only important rival. This fact, combined with the relatively cheap rail hauls from mine to port enabled Britain to dominate the seaborne coal trade of the world.

'The last war and its aftermath brought many changes. German coal was sent as reparations to France, Belgium and Italy, and other countries expanded their native coal industries. In addition, the conversion of shipping from coal to oil-burning adversely affected the British coal industry.

'After 1925 Polish coal, deprived of an important market in Germany, began to find its way to sea and quickly gained an important place in the world market. From then on Britain gradually lost trade, first to Poland and then to Germany.

'The reorganisation of the Polish and German industries rapidly in-

COAL MINING

creased their productivity in the next ten years. Progress was also made in smaller countries and by the U.S.A. By 1925/1927 three European countries and Britain had recovered their 1913 level of OMS. Taking the year in which each country recovered its pre-war level as the base for measuring subsequent progress we find that by 1936, the peak year for every country, increases had been as follows:

<i>Country</i>	<i>Basic year</i>	<i>OMS in basic year</i>	<i>OMS in 1936</i>	<i>Percentage increase</i>
		<i>cwts.</i>	<i>cwts.</i>	
Poland - -	1927	23.44	36.20	54
Holland - -	1925	16.48	35.94	118
The Ruhr - -	1925	18.62	33.66	81
Britain - -	1927	20.62	23.54	14

'So far as natural conditions are concerned there is no reason why Britain should not catch up with the productivity per man of the Ruhr and Holland.

'The highly organised selling methods on the Continent, particularly in the Ruhr, secured remunerative prices from sales in their own national markets. With the help of these profits the industries were enabled themselves to find considerable sums for technical reorganisation or, failing that, to obtain loans from abroad.

'In Britain, on the other hand, the industry as a whole was in a perpetual state of financial embarrassment, and the continual political uncertainty surrounding the ownership of the industry discouraged expenditure on capital equipment. Adequate financial resources for major technical improvements is one reason why Continental countries have increased productivity per man, and taxation allowances are on a much more favourable scale than in Britain.

'On the Continent, the ownership of the mineral has always been vested in the State which has exercised control over the orderly extraction of the seams. Individual concessions to work coal cover a considerable area and this has doubtless tended to keep the number of separate undertakings to a comparatively low figure. In Britain the ownership of the mineral was, until recent years, in the hands of many owners each wanting his coal to be worked quickly so that he can draw his royalty. Even where a single owner held rights over a considerable area he sometimes granted leases only for small areas in order to get several undertakings to work his coal simultaneously. In these circumstances mineral leaseholds were often too small or too awkwardly shaped to justify the laying out of big mines. Too

many mines were developed which were too small to support the equipment and technical staff for modern mining practice; and not enough attention was paid to the conservation of the national coal resources. The transfer of ownership rights to the State, by the Coal Act, 1938, cannot appreciably affect the size or shape of existing leaseholds.

'Ownership within the industries of the three Continental countries is highly concentrated. In the Ruhr, at any rate, this has made it possible to close down uneconomic mines and to amalgamate adjacent mines and to work economic mines more fully. In Britain ownership is widely dispersed and this has not been conducive to concentration of production at the more productive mines and has made it difficult to ensure that the services of the best mining engineers are widely available.

'The underground layout of Dutch mines, which is representative of many Continental mines, has diverged widely from that followed in Britain. We hesitate to say whether the Continental practice of driving level main roadways was attributable to the steep slope of the seams commonly found on the Continent, or to an adaptation of metalliferous mining practice or to some other reason. In the flatter seams of Britain, however, it was possible to follow the seams and to draw the coal through roads in the seam, at the first by hand, then by ponies and later by ropes. The later Continental development of straight and level roads through the strata, which have proved so valuable an asset to their modern haulage systems, may have resulted from the necessity of surmounting difficult natural conditions.

'In Britain, the difficulties were less acute and were partially solved, though with decreasing success as the years went by, by the use of a succession of rope haulages. The problem of securing fully efficient haulage was not squarely faced, even where seams were steep and well adapted to the Continental layout, either because the alternative available was not realised or because of unwillingness to depart from well-tried practice.

'The original advantage possessed by Britain has been lost, and the considerable age of many British mines and the long distances from the shafts at which coal, in consequence, is now being mined, increase the difficulty of altering layouts to suit modern locomotive haulage systems.

'In the Ruhr and in Holland the system of mining is Longwall Advancing, the same which is predominant in Britain. Face conveyors are in general use through these three countries. In the Ruhr and Holland pneumatic picks are almost universally used for coal getting, while in Britain and Poland coal-cutters and explosives are generally used. The use of pneumatic picks enables two coal-getting shifts to

be worked every 24 hours, compared with one such shift with coal-cutters. But though this brings important advantages, it is not thought that it accounts in any large measure for the higher OMS, *underground*, which is obtained.

'In the U.S.A. underground transport is by locomotive on the level and main rope haulage on inclines, nearly always by large mine cars of 3-10 tons capacity. On the whole, natural conditions make the problem a simple one.

'On the Continent main haulage is also by locomotives working on level roads almost universally driven through the strata. Tubs have mostly a capacity of about a ton but in newer mines 3-ton cars are being installed.

'The extensive conveyor systems dovetailed into the transport arrangements and rendered a large concentration of output at one loading point efficient and satisfactory.

'In Britain, with a fundamentally different underground layout, the main roads were formed in the seams. These roads have proved generally incapable of accommodating anything but rope haulage or conveyors and the former became standard British practice. The successful operation of conveyors on the coalface demands a continuous smooth flow of coal all the way from the coalface to the shaft bottom, with a minimum use of manpower.

'This the majority of rope haulage systems could not provide, and the advantages expected from the introduction of face conveyers were not realised.

'The problems of underground transport have been solved in the U.S.A. and on the Continent but not in Britain, and the failure of British systems has become greater with the spread of intensive mining and increasing distances from the shaft-bottom. The figures of the average tonnage of saleable coal handled by each haulage worker per shift in the U.S.A., Holland and Britain give startling proof of this fact.

'They are as follows :

U.S.A. -	50 tons per haulage worker per shift.
Holland -	20-25 " " " "
Britain -	5 " " " "

'In the U.S.A. and on the Continent the transport of materials and men to and from the working face is much more efficiently organised than in Britain.

'Training of new entrants to the industry is very thoroughly organised in Holland and considerable provision is made in Germany. Little comparable provision was made in Britain before the war.

'On the Continent coal is classified by its chemical properties,

calorific value and size and for inland or non-competitive sales prices are fixed accordingly. The price of large coal on the Continent is generally no higher than the larger sizes of nut coals because domestic heating is done by stoves or central heating plants.

'In Britain high prices are obtained for the large coal sold for use in open grates and there is a big variety of different sizes and qualities available for all purposes. Size descriptions are not standardised and qualities seldom conform to any general classification but are sold under names of collieries, districts or seams producing them.

'Demands for special sizes or grades have often passed reasonable bounds and have the following harmful effects upon mining efficiency :

(1) The seams which produce the best house coal are often exploited first with too little regard for the effect of doing so upon later mining operations in other mining seams.

(2) Concentration upon production of a standard quality of coal from each mine has been prejudiced by demand for the product of named seams and especially by the need to produce house coal in varying quantities according to seasonal demand.

(3) Large coal has to be separated on the surface into a number of different qualities for the home coal market and passed over picking tables where many persons are employed on hand picking.

'There would seem to have been a very different attitude among the industrialists of the U.S.A., the Ruhr, Poland and Holland, and those of Britain, towards the problems of their respective coal industries. On the Continent, the existence of closely organised industries has encouraged the collective examinations of their problems and a scientific and analytical assessment of future prospects. In the U.S.A. the attitude has been individualistic, to believe in the survival of the fittest, and to see in the installation of the latest machinery the proper corrective to impaired competitive power.

'In Britain, the long individualistic tradition persisted, qualified, late in the day, by general acceptance of the Coal Mines Act, 1930, regulating prices and output. But there was general opposition to Part 2 of the Act and its principle of amalgamation which might have led to technical reorganisation. Indeed the need for technical reorganisation does not seem to have been appreciated. British employers pointed out the subsidies enjoyed by Continental rivals but seem to have ignored the high productivity they obtained.

'The standing of mining engineers on the Continent must have been high. They have clearly been in a position of technical authority, able to plan development on the lines they considered best to use the most suitable machinery. In America, the vast scale of industry provided opportunity for the development of new ideas and the intense competition kept the engineer on his toes.

'Financial stringency and lack of broad vision in the direction of the industry provided British mining engineers with little encouragement to formulate bold schemes. But too few mining engineers realised how much traditional methods needed to be changed. This was due in part to the fact that the profession was less attractive than it had been and recruited too few men of engineering ability.

'In Germany, between 1925, when rationalisation of the industry began, and 1933, when Hitler seized power, there was severe unemployment among the miners. Relations between miners and employers were generally bad. After 1933 unions were dissolved and strikes were made illegal.

'In Holland relations have always been good as is proved by rapid increase in productivity and lack of serious labour disputes.

'In the U.S.A. disputes have been frequent and bitter. But both workmen and their leaders have favoured the attainment of the highest productivity and willingly accepted all mechanical aids. They recognise that only by high productivity could high wages be paid when competing with other fuels and this fact has assisted in creating the high OMS of the American industry.

'After the 1926 stoppage British mineworkers were disinclined to co-operate with the employers and refused to recognise that, in the long run, their wages must depend upon progressive efficiency. Mechanisation was not received with enthusiasm and its potential savings have been dissipated by a quiet determination that the number of men discharged must be kept as low as possible. This attitude has not been favourable to high productivity with the smallest labour force necessary to provide the country with the coal it needed; and heavy unemployment among coalminers between the wars and the lack of alternative work goes some way to explain it. But wartime experience suggests that pre-war lack of co-operation was not wholly due to unemployment and short-time working.

'There were, however, some notable exceptions to lack of co-operation, particularly in the Midlands. Relations between employers, miners' leaders and men have been good over a considerable period and high production has been encouraged. If the same co-operation had been present throughout the industry, OMS in 1939 would have been much higher than it was, despite the technical deficiencies described.'

Ministry of Fuel and Power. Report of the Technical Advisory Committee. Coal mining. Cmd. 6610 1945 Table 1 (E)

Output by regions

'Changes in output per man per shift at the coal face and the percentage of coal mechanically cut and conveyed, 1927-1939:'

COAL MINING

Table continued on page 41

District	Output of saleable coal in 1939	1927		% of coal face conveyed (1928)*
		Output per shift at face	% of coal cut	
S. Wales and Monmouth - - -	35,269,149	43.95 cwt.	7	16
S. Yorkshire - - - - -	32,042,048	55.79 "	11	7
Durham - - - - -	30,648,810	62.06 "	18	6
N. Derby and Notts. - - -	30,647,798	55.59 "	22	8
Scotland - - - - -	30,528,974	54.17 "	56	25
Lancs. and Cheshire - - -	14,320,371	43.74 "	16	8
Northumberland - - - -	12,842,799	58.50 "	42	13
W. Yorkshire - - - - -	12,318,972	55.79 "	30	4
N. Staffordshire - - - -	7,416,669	44.78 "	32	22
Warwickshire - - - - -	5,776,478	57.21 "	24	10
Cannock Chase - - - - -	5,286,403	53.93 "	23	9
S. Derby and Leics. - - -	4,034,153	55.11 "	27	6
N. Wales - - - - -	2,665,505	42.38 "	41	29
Kent - - - - -	1,865,095	53.73 "	8	1
Cumberland and Westmorland -	1,592,296	40.14 "	10	—
S. Staffs. and Worcs. - - -	1,336,364	69.33 "	3	0.4
Forest of Dean - - - - -	1,312,756	35.79 "	2	6
Somerset - - - - -	719,998	36.51 "	1	4
Shropshire - - - - -	650,673	46.69 "	22	—
Bristol - - - - -	62,636	45.16 "	3	—
Great Britain - - - - -	231,337,947	51.99 cwt.	23	12

* Figures were not collected on this basis until 1928.

† This figure is comparable with the corresponding figure for 1927. See note at the foot of Table 5 in the Ministry of Fuel and Power's *Statistical Digest 1938* (Cmd. 6538).

Design of surface buildings

The appearance of many colliery yards and offices often makes an impression of dirt and disorder, and the outside observer may be pardoned for drawing conclusions about conditions underground from what appears on the surface. In addition, the appearance of colliery premises must affect those employed at the mine and pride in their place of employment cannot be created without effort by the managements.

No plans for a new mine, nor, where surface arrangements are affected, for the remodelling of an existing mine, should be started before the advice of an architect as well as an engineer has been taken on the design of the surface layout as a whole, and an effort made by planting trees, shrubs and grass to make the surface attractive.

Ministry of Fuel and Power. Report of the Technical Advisory Committee. Coal mining. Cmd. 6610 1945 paras. 579-582 (S)

COAL MINING

Table continued from page 40

Output per shift at face	1939		Percentage increase or decrease in output per shift per face	Average annual increase in percentage of	
	% of coal cut	% of coal face conveyed		Coal cut	Coal face conveyed
45.85 cwt.	26	48	+4.32	1.58	2.67
71.78 "	60	68	+28.66	4.08	5.08
62.66 "	43	27	+0.97	2.08	1.75
76.20 "	80	82	+37.08	4.83	6.17
53.96 "	80	59	-0.39	2.00	2.83
53.37 "	74	79	+22.02	4.83	5.92
62.05 "	92	45	+6.07	4.17	2.67
71.78 "	58	39	+28.66	2.33	2.92
67.77 "	95	93	+51.34	5.25	5.92
79.35 "	72	70	+38.70	4.00	5.00
57.92 "	67	52	+7.40	3.67	3.58
72.51 "	89	79	+31.57	5.17	6.08
61.46 "	67	81	+45.02	2.17	4.33
59.67 "	9	79	+11.06	0.08	6.50
44.54 "	71	38	+10.96	5.08	3.17
79.58 "	6	1	+14.78	0.25	0.05
45.31 "	26	28	+26.60	2.00	1.83
34.80 "	7	13	-4.68	0.50	0.75
62.24 "	61	24	+33.20	3.25	2.00
44.13 "	19	2	-2.28	1.33	0.17
60.46 cwt.†	61	58	+16.29	3.17	3.83

Ministry of Fuel and Power. Report of the Technical Advisory Committee. Coal mining. Cmd. 6610 1945 Table 1 (E)

Costs of production

Year	Total costs of production*	Proceeds	Balance	
	per ton of coal disposable commercially		Credit	Debit
	s. d.	s. d.	s. d.	s. d.
1924	18 7	19 9	1 2	—
1925	16 10	17 1	0 3	—
1926†	14 6	15 9	1 3	—
1927	15 7	15 1	—	0 6
1928	14 2	13 3	—	0 11
1929	13 7	13 11	0 4	—
1930	13 9	14 1	0 4	—
1931	13 9	14 0	0 3	—
1932	13 8	13 10	0 2	—
1933	13 4	13 7	0 3	—
1934	13 0	13 5	0 5	—
1935	13 0	13 6	0 6	—
1936	13 8	14 7	0 11	—
1937	14 8	15 11	1 3	—
1938	16 0	17 4	1 4	—
1939	16 4	17 11	1 7	—

* After deducting the proceeds of miners' coal.

† January to April. National dispute lasting approximately seven months.

'Costs of production, proceeds and profit or loss per ton of coal disposable commercially in Great Britain from 1924 to 1939.'

Ministry of Fuel and Power. Report of the Technical Advisory Committee. Coal mining. Cmd. 6610 1945 Appendix ii (E)

COASTAL PRESERVATION

The problem in England and Wales

The coastline is of special importance in the future of the countryside. There is no need to attempt physiographical or legal definitions; the word coastline rightly suggests a narrow belt of country all round this island. There is only one such belt and it is extremely easy to spoil it. The narrow limits of the coastal belt and its great attraction are two of the principal factors involved in preservation problems and policies.

It has been assumed that any unspoilt part of the coast—cliffs, dunes, salt-marsh, estuary—should be rated basically as good natural scenery. On the other hand certain parts of the coast can be regarded as of outstanding quality. Most people would probably include the Mawddach and Dyfi estuaries, parts of the Pembrokeshire coast, the Hartland district and the southern tip of Devon. There remains an intermediate category about which there may be differences of opinion. The survey [made by the author] was primarily concerned with the coast but had to take account of the immediate hinterland while preserving some distinction between the two. An attempt has been made to evaluate the various parts of the coast impartially, and to put them into classes based on a constant standard. If this has been achieved the standard can be adjusted if it is thought too high or too low.

The distribution of industrial areas, residential districts, quarries and buildings have been clearly shown on field-maps. Notes have been made of all shacks, huts and ugly and misplaced buildings. Good, well-built houses may be as offensive as meaner dwellings, especially if on open cliffs or if the individual houses or groups are poorly planned and sited.

After the war it is very probable that the number of visitors to the seaside will increase, including many who have seldom or never visited it before. The coast falls into many categories—popular and select resorts, haunts of regular visitors and long lines of unspoilt coast. All parts of the coast will become more popular and it is probable that more and more people will come to enjoy the unspoilt stretches. Walkers will need food and shelter, but it must not follow that camps, hotels and cafes appear at random on or near any coastal

viewpoint. Haphazard placing of buildings on the coast forms one of the worst features of its desecration.

In these islands there is a great variety of rock types nearly all of which reach the sea at some point or other—chalk, limestone, granite, sandstone—and as a rule our finest cliffs show a variety of colours and shades, not only those of the rock itself, but those also of the plants on the higher parts of the cliffs. And in striking contrast to the cliff scenery are the large areas of dunes and marshes, including many fine examples of salt marshes.

A full analysis of the spoiled and surviving coastal landscapes is plainly not practicable in a short space. What matters is an explanation of the process of spoiling with some reference to specific places.

Some forms of industrial development have had noticeably bad results, especially mining and quarrying. This is clear in the case of the fine Magnesian Limestone cliffs of Durham, the natural beauty of which derives largely from the deeply cut and wooded denes which run down to sea level. Scarcely any part of this coast has escaped disfigurement by coal-tip, winding gear or associated ugly mining village. And much the same is true of the Northumberland coast between the Tyne and Coquet rivers. In the west, the coalfield coast of Cumberland is a desolation and the Flintshire side of the Dee estuary is nearly as bad. On the other hand industrial growth has effected the coastal scenery of South Wales far less than might have been supposed. In parts of Cornwall, including St. Agnes and St. Just, former mining has left bad scars, although they do not compare with the coal areas in ugliness. Attention must be called to the iron workings in Furness and at Skinnergrove in north-east Lancashire and to the widespread and truly deplorable quarrying of which the scars at Penmaenmawr, the Little Orme and Tan Penmaen Head on the North Wales coast are horrible examples. Perhaps the worst case of all is at Yr Eifi in the Lleyn peninsula.

Economic needs must of course be recognised: iron ore of a useful kind must result in iron fields, and stone must be quarried with reference to quality, position, labour and market. But the planner has the right to ask whether it is necessary for mining waste to be disposed of so untidily, whether ugly buildings be quite inevitable in industrial areas and whether the only suitable stone occurs in some of the more conspicuously misplaced quarries.

In many cases the huts and shacks which sprang up between the two wars are almost worse than the industrial areas. Among the worst of these settlements is Flamborough Head, where a whole town of hutments has completely ruined the scenery of that fine chalk headland. Other examples are between the Point of Air and Prestatyn in

North Wales and on the Lincolnshire, Norfolk, Holderness, Essex and South-East coasts.

It is fair to recognise that the renting of a hut, converted bus or any other kind of dwelling represents in the first place a desire for an open-air holiday away from towns and smoke. But the drive for sea-side holidays has over-reached itself in two important ways. Unregulated building has often resulted in serious overcrowding, bad sanitation and lack of privacy; and many parts of the coast have been ruined. There are at least partial remedies for these evils: they include the building on proper sites of large and small camps and the re-siting or re-grouping of some huts and the destruction of others.

The removal of military defence works will also be a large post-war problem.

Spoiling of the coasts by huts and buildings is as much a result of geographical conditions as disfigurement by mineral workings. The overbuilding of the east coast has taken place partly because it is the drier side of the country and partly because of its many fine beaches. Similarly, nearly all the sandy coves in south-west England and Wales, where bathing is reasonably safe, are partly or wholly spoiled. A shingly or rocky beach or foreshore is frequently untouched.

The dismal features of the picture can, however, be exaggerated. The danger is, or was, that bad development might have expanded indefinitely, and one indirect benefit of the war has been to check the process and prompt new planning legislation which can prevent a relapse into past errors. Public opinion and a judicious expenditure will make such legislation a reality. There are still many miles of coast quite unspoiled, and parts of some of the finest cliff coast, as well as other stretches of coast, are owned by the National Trust.

Coastal areas must be enjoyed and, though planning should check access which leads to spoiling, it should encourage every other form, including the right of walking round the coast. There has been discussion of opening up the coastguards' paths, and despite the question of rights of way, the planner may well suggest that continuous paths should be available along the cliffs and beaches of much of our coasts. In certain areas it may not be desirable to have too many walkers—for instance, in sand dune areas where damage may be done by uninstructed walkers—or in Nature Reserves. There is also the question of the line which the coastal path should follow in places where the coast line is receding or moving outwards.

It is plain that the time has now come when the nation should take care of its coastline and that it should be looked on as a national and not a local possession. More than thirty years ago the Royal Commission on Coast Erosion showed that erosion and deposition of beach material could not be dealt with locally or at random. In

general, beach material moves up-channel along the South Coast and southwards along the East Coast. If town *A* puts out groynes and piers it will probably collect a larger beach, while town *B*, a few miles to leeward, will probably be deprived of an adequate supply of material.

Both protective works and well-planned reclamation schemes are very expensive and will be probably beyond the means of private owners.

In the second place, the less populated and poorer districts have not the means of protecting their amenities or of providing proper accommodation for the public. Cardiganshire cannot possibly spend at the same scale as Sussex and must never allow its coast to suffer like that of Sussex.

The coast should be regarded as a unit and be used and enjoyed under the aegis of the Ministry of Town and Country Planning. This would enable the problems of erosion and accretion, accommodation and access to be handled together and in relationship to the proposed scheme of National Parks, some of which may be coastal.

The whole matter is basically one of geography: 2,751 miles of coast in England and Wales; a wide variety of coastal scenery and climate; an unequal network of roads and railways; a complex distribution of industry; and a high population settled in irregular clots. These people will want to visit the seaside—in vast numbers at Blackpool or Southend, in more manageable masses at other resorts, in large or small camps or as individuals on the remoter coasts. It is the last type of coastal region which is likely to become more and more popular in the right sense. National authority may be thought of as co-ordinator and judge of all forms of planning for the use and enjoyment of the coast.

STEERS, J. A. *Coastal preservation and planning*. *Geographical Journal* Vol. civ Nos. 1 and 2 1944; and Vol. cvii Nos. 1 and 2 1944 (S)

COMMUNITY CENTRES

Recommendations

The provision of premises and facilities for the use of leisure should be looked on as a very important part of the educational system of the country, and a large-scale development of community centres should be undertaken after the war, particularly on new housing estates. A community centre should be both a club and a centre for the community's recreational and educational societies. Its day-to-day activities should be run by its users, and the establishment of

COMMUNITY CENTRES

social activities, and particularly of a good canteen, should be the first aims.

Local education authorities should survey their area to decide where centres are most needed and consider where school buildings could provide accommodation for the centre. Villages with a population of over 400 should have a village hall, and village colleges in suitable centres should provide for a greater range of leisure activities. The first cost and the structure maintenance of the buildings should be borne by the local education authorities, as well as the Warden's salary. A full-time paid Warden should be appointed for each community centre which is intended to serve 2,000 or more families.

It is suggested that the most suitable design for a community centre would be one that would enable the accommodation to be progressively enlarged, from a small hall, kitchen and canteen-common room to a considerable building containing a large hall equipped for stage shows, a small hall, large common room, kitchen, gymnasium and a dozen other rooms.

Provision for out-door games is very desirable but the greatest post-war need will be in areas where probably only reasonable garden space around the building will be practicable. But the more a centre catered for all the year round activities the better would it fulfil its function. A centre intended to serve the needs of a population of 15,000-20,000 should be capable of accommodating simultaneously about 500 people.

Ministry of Education. Community centres. 1944 (S)

COMPENSATION AND BETTERMENT

Definition of betterment

'... to sum up, while the term "betterment" is not specifically defined in any general Act, it may now be taken, in its technical sense, to mean any increase in the value of land (including the buildings thereon) arising from central or local government action, whether positive, e.g., by the execution of public works or improvements, or negative, e.g., by the imposition of restrictions on other land.

The term is not, however, generally understood to include enhancement in the value of property arising from general community influences, such as the growth of urban populations. This gives rise to a difficulty in the strict application of the principle of betterment which is that, if property is enhanced in value by reason of some action, whether positive or negative, by the State or a local authority, the State or the local authority should be entitled to recover the whole or some part of the increase in value, for it is generally a matter of great

COMPENSATION AND BETTERMENT

difficulty to prove the extent to which any increase in value can be properly attributed to a particular improvement or to the operation of the scheme in question.

‘... to sum up, while we unhesitatingly accept the principle of “betterment” as being a fair one, we are convinced that the segregation of “betterment” which is particularly ascribable to planning is impracticable.’

Ministry of Works and Planning. Expert Committee on Compensation and Betterment. Final report (the Uthwatt report). Cmd. 6386 1942 paras. 260, 293 (E)

Government policy on compensation and betterment, 1944

The Government feel that some time must elapse before they can decide the right compensation to be paid. They accordingly propose that no compensation shall be paid for five years after the enactment of the new legislation. The *right* to compensation should be determined as soon as possible after the Act comes into force, but the *level* at which the amount of compensation is to be assessed should not be determined until the end of the five years.

It is proposed that the following steps shall be taken in order to provide information for the Government :

(i) Land will be divided into three broad categories :

- (a) Rural land which at 31st March, 1939, possessed substantially no development value, called ‘green’ land.
- (b) All other unbuilt-on land, called ‘white’ land.
- (c) Built-on land.

(ii) It will be presumed that ‘green’ land had no development value, but provision will be made for any owner of land of this kind to claim that his land had development value.

(iii) Individual valuations will be made of the development value, if any, of all ‘white’ land at 31st March, 1939.

(iv) Valuation of the enhanced value for redevelopment at 31st March, 1939, of built-on land will be made when the owner of such land claims that it did possess such value.

Minister of Town and Country Planning. The control of land use. Cmd. 6537 1944 paras. 30–31 (S)

Main recommendations of the Uthwatt Committee on compensation and betterment

The three most important recommendations of the Uthwatt Report may be shortly stated as follows :

(1) *Undeveloped land outside town areas*

(a) Immediate vesting in the State of all rights of development.

(b) Payment of compensation to owners for the resulting loss of development value, on the basis of a fixed single sum representing the fair value to the State of the development rights taken as a whole, and divided among owners in proportion to the estimated development value of their individual holdings at 31st March, 1939.

(c) Purchase by the State, if necessary by compulsion, of all land, with trifling exceptions, at the time of its development, followed by a lease of the land to the developer for an appropriate term at an appropriate charge.

(2) *Developed Land*

Purchase by the Planning Authority by a simpler and quicker procedure of any areas requiring redevelopment as a whole, at a price not exceeding sums based on the value of the land at 31st March, 1939.

(3) *Betterment Levy*

Imposition of a levy of 75 per cent. of any future increase in the annual value of developed land.

Minister of Town and Country Planning. The control of land use. Cmd. 6537 1944 para. 12 (S)

CONURBATION

Definition

'For these big concentrations [of the industrial population] a term "Conurbation", is now often used. It apparently owes its origin to Professor Patrick Geddes, who wrote many well-known works on Town Planning during the first quarter of the present century. He uses it, but without any precise definition, to indicate what he calls "city regions", or "town aggregates", such as Greater London, but his use of the term is a wide one; he would, for instance, include Liverpool and Manchester and the Lancashire millions generally in a single conurbation which he christens "Lancaston" (*Cities in Evolution*, 1915, p. 34). Professor C. B. Fawcett defines a conurbation as "an area occupied by a continuous series of dwellings, factories and other buildings . . . which are not separated from each other by rural land (*Geographical Journal*, Feb. 1932, p. 100). This definition seems to place too much emphasis on bricks and mortar as constituting the link: while in many cases it may be an adequate definition, in others a better test would seem to be how far out from a given centre does industry or the industrial population look to that centre as essential to its life and as the focus of its business activities. In this sense,

CONURBATION

Park Royal and Waltham Abbey (both in the Metropolitan Police District, i.e. in the area commonly known as Greater London) are clearly part of the London conurbation; possibly places like Slough and Stevenage, while more distant from the centre and outside Greater London should also for some purposes be regarded as falling within the London conurbation. Similar considerations apply to Manchester and some of the urban units surrounding it. In any case, the term is now frequently used without too precise definition, and if, in any case, a precise definition is necessary, the municipal areas to be included should be enumerated.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940, para. 12 (E)

COST OF LIVING

Cost of living, 1924-38

'Index numbers of cost of all items, viz. food, rent, clothing, fuel and light, etc., Great Britain.'

JULY 1914 = 100

<i>Year</i>	<i>Mean for the Year</i>
1924	175
1925	176
1926	172
1927	167½
1928	166
1929	164
1930	158
1931	147½
1932	144
1933	140
1934	141
1935	143
1936	147
1937	154
1938	156

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938 Cmd. 6232 1940 Table 137 (E)

COST OF LIVING

Expenditure on fuel

Weekly expenditure of industrial households on coal, gas and electricity, 1937-38. (Expenditure is shown in shillings).

Persons per household	London		Midlands		Wales		North-East		Scotland		Gt. Britain	
	Sh.	No. of households	Sh.	No. of households	Sh.	No. of households	Sh.	No. of households	Sh.	No. of households	Sh.	No. of households
1	2.84	40	2.77	13	0.53	6	2.62	25	2.98	24	2.63	166
2	4.94	298	5.24	267	4.23	82	5.30	215	4.35	163	4.86	1,731
3	5.63	400	5.75	336	5.35	135	5.44	257	4.98	235	5.29	2,325
4	6.24	283	5.91	277	5.04	105	5.65	253	5.14	222	5.63	1,899
5	6.22	208	6.18	147	5.67	60	5.55	121	5.73	158	5.81	1,134
6	6.85	82	6.00	84	5.72	20	5.69	55	5.81	91	5.94	517
7	7.08	43	6.38	43	5.61	14	6.51	34	6.35	35	6.21	265
8	7.86	15	6.76	22	4.76	8	5.65	12	5.99	16	6.38	122
9 and over	7.96	15	6.80	18	4.79	4	6.49	10	7.13	25	6.84	118

Source: Ministry of Labour Family Budget enquiry.

BEVERIDGE, WILLIAM H. *Social insurance and allied services*. Cmd. 6404 1942 p. 86 Table viii (S)

Minimum cost of living, 1938

'Margin.—The foregoing calculations [see *op. cit.*], particularly that for food, assume complete efficiency in expenditure, i.e. that the unemployed or disabled person buys exactly the right food and cooks and uses it without waste. This assumption is clearly not likely to be realised. Some margin must be allowed for inefficiency in purchasing, and also for the certainty that people in receipt of the minimum income required for subsistence will in fact, spend some of it on things not absolutely necessary. It is suggested that a margin of 2s. a week

	Man and wife	Man	Woman
Food - - -	13s. 0d.	7s. 0d.	6s. 0d.
Clothing - - -	3s. 0d.	1s. 6d.	1s. 6d.
Fuel, light and sundries	4s. 0d.	2s. 6d.	2s. 6d.
Margin - - -	2s. 0d.	1s. 6d.	1s. 6d.
Rent - - -	10s. 0d.	6s. 6d.	6s. 6d.
	32s. 0d.	19s. 0d.	18s. 0d.

COST OF LIVING

for a man and a woman together and 1s. 6d. a week for a man or a woman separately should be allowed. From these considerations there emerges the [foregoing] table.'

BEVERIDGE, WILLIAM H. *Social insurance and allied services.*
Cmd. 6404 1942 para. 221-222 and Table ix (E)

Weekly working-class expenditure, 1937-38

Industrial households by divisions	Persons per household (1)	Per household in shillings		Per standard industrial household in shillings		Per cent. of mean for all industrial households	
		Food, clothing fuel and light (2)	Rent (3)	Food, clothing fuel and light (4)	Rent (5)	Food, clothing fuel and light (6)	Rent (7)
London (1456) -	3.66	50.1	15.7	51.1	16.0	104.9	148.1
S.E. (839) -	3.67	45.0	11.2	45.9	11.4	94.2	105.5
S.W. (776) -	3.66	46.4	10.3	47.4	10.5	97.3	97.2
Midland (1276)	3.77	50.5	10.3	50.0	10.2	102.7	94.4
N.E. (1035) -	3.68	46.6	10.1	47.4	10.3	97.3	95.4
N.W. (1281) -	3.73	47.8	10.7	47.8	10.7	98.1	99.1
N. (572) -	3.69	46.0	9.2	46.6	9.3	95.7	86.1
Wales (434) -	3.71	47.1	9.1	47.4	9.1	97.3	84.3
Scotland (980) -	4.02	53.7	8.2	50.0	7.6	102.7	70.4
All industrial households (8649) -	3.73	48.7	10.8	48.7	10.8	100.0	100.0
Agricultural households (1313) -	3.79	37.9	4.8	37.3	4.7	76.6	43.5

'[The Table gives], for industrial households in each division of Britain and for agricultural households, the weekly expenditures in 1937-38 on rent and on food, clothing, fuel and light respectively, as deduced from the Ministry of Labour Family Budgets (the main results were published in the *Labour Gazettes* for December 1940 and January 1941). In order to allow for the differing numbers of persons per household in different divisions of the country, the expenditures are shown in columns 4 and 5 for "standard households" of the same size in all cases; adjustment to standard households reduces the expenditure shown where the number of persons per household is above the average for the country as a whole and increases it where the number is below average. In columns 6 and 7 these standardized expenditures are shown for industrial households in each division as a percentage of the mean for all divisions.

'The figures in brackets give the number of households in each

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division for which budgets were obtained. The divisions are those of the Ministry of Labour and National Service.

'It will be seen that, for food, clothing, fuel and light, the percentages for the separate divisions all lie in a narrow range, between 94·2 and 104·9, with agricultural households spending 76·6 per cent. of the industrial mean. For rent, the range is much greater, from 70·4 per cent. in Scotland to 148·1 per cent in London in industrial households, with agricultural households spending only 43·5 per cent. of the industrial mean. The average of the actual rents runs from 16·0 shillings a week in London to 7·6 shillings in Scotland for standard industrial households, and is 4·7 shillings in agricultural households. The expenditures of agricultural households relate to a time before the recent raising of agricultural wages.'

BEVERIDGE, WILLIAM H. *Social insurance and allied services.*
Cmd. 6404 1942 paras. 198, 199 and Table iv (E)

DEVELOPMENT AREAS

Assistance for the Special Areas before 1939

'It is therefore necessary to look on movements in industry as a permanent phenomena varying in degree from time to time, and to be met with mobility (in the sense indicated of ready adaptation to economic change) as an indispensable defensive weapon.

'Such movements may produce grave economic friction: heavy financial loss may be incurred by industry and the financial interests concerned, and the risk of unemployment is involved. It is easier to recommend mobility than to secure it, and under modern conditions appeals for assistance by the interests adversely affected is inevitably made to the Government of the day.

'Government measures may take the form of an endeavour to "cushion" the blow of a great change by tariffs or commercial treaties. Further, existing or new machinery may be brought into play with a view to mitigating the severity of the change, and this has in fact been done by the Government in the case of Great Britain. The measures taken in the case of the Special or depressed areas were indicated in the evidence of the Ministry of Labour, and may be summarised shortly as follows:

- (a) "Placing" work of the Employment Exchanges;
- (b) Transference, with financial assistance in various forms, of unemployed both adults and juveniles, from areas of severe unemployment to more prosperous areas with new openings;
- (c) Establishment of training centres and instructional centres;
- (d) Legislation for the four Special Areas:
 - (i) West Monmouthshire and the greater part of Glamorgan;
 - (ii) Tyneside, and the greater part of County Durham, etc.
 - (iii) West Cumberland;
 - (iv) Middle Industrial Belt of Scotland, excluding Glasgow;
- (e) The creation of Trading Estates and smaller industrial centres, with financial assistance from the Commissioners for the Special Areas;
- (f) Land Settlement, also financed by the Commissioners;
- (g) Location of factories required for the Government's Defence programme;
- (h) Preference given to areas of heavy unemployment in the allocation of Government contracts;
- (i) Location of factories established by foreign firms or firms employing foreign labour.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 paras. 309-311 (E)

DEVELOPMENT AREAS

Pre-1939 legislation for the Special Areas

'The legislation for the four Special Areas . . . includes :

(1) The Special Areas (Development and Improvement) Act, 1934, under which Commissioners were appointed to initiate, organise, prosecute and assist measures designed to facilitate the economic development and social improvement of the specified Areas. The Commissioners were vested with wide powers of financial assistance, and empowered to establish Trading Estate Companies in the Areas.

(2) The Special Areas Reconstruction (Agreement) Act, 1936, under which a limited company—the Special Areas Reconstruction Association—was set up. The Government gave certain guarantees in connection with the company's capital and the Company was empowered to make loans to persons either newly setting up a business in a Special Area, or already carrying on a business there and needing financial help for purposes of extension.

(3) The Special Areas (Amendment) Act, 1937, under which the Treasury were authorised, in accordance with the recommendations of an Advisory Committee, to make loans to persons carrying on any industrial undertaking established in a Special Area subsequent to 6th May, 1937, provided that the undertaking was likely in normal circumstances to employ not less than ten persons. Under this Act, the Commissioners were authorised under certain conditions to let factories in any of the Special Areas for the purpose of inducing firms to set up there and to offer contributions towards rent, rates and income tax.

' . . . Up to 30th September, 1938, financial assistance, in the form of capital, had been given *for the establishment of new industries* in the Special Areas, to 121 firms, the amount of assistance provided being £2,874,000. The number of workpeople to be employed by the firms in question was estimated at approximately 14,900. The total number of firms assisted by capital and other financial inducements, such as the provision of factories or factory sites, was approximately 290.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 311 (E)

DISTRICT HEATING

Advantages and examples of district heating

District heating is a system which consists of a central station where coal is consumed to produce hot water or steam, generally the latter, which is then circulated through street-mains to as many buildings as

DISTRICT HEATING

care to take the supply in a manner similar to gas and electricity. Payment is usually made on a unit-consumed basis, with or without a maximum demand charge and sometimes with a minimum demand to cover the cost of the installation.

In 1934 a district heating system was in use in 161 important towns in the U.S.A. and 27 in Europe.

The possible advantages of such a system include :

(1) Convenience of a constant supply in each building ready for use as needed.

(2) Saving of the cost of a separate heating installation in each building, of space occupied by it and labour in maintaining it.

(3) Economies obtainable by the operation of a single large plant as opposed to many small ones.

(4) Reduction of atmospheric pollution.

It is doubtful whether district heating can be justified unless greater value is attached to convenience and absence of smoke and dirt, since the savings in fuel cost which can be made at the generating station are more than eaten up by the costs of distribution, and no financial advantage can be shown. A position of equality between the two systems can however be reached without taking greater cleanliness and smoke abatement into consideration.

Further economies are obtainable if the district heating system is combined with the electricity power station for the community. In the conversion of steam into mechanical and electrical power a great waste occurs owing to the narrow temperature range within which steam engines work and the consequent waste of residual heat in exhaust steam. This combination, which enables waste heat to be efficiently used, even if it has to be supplemented, is already in use in many installations in this country including the Bank of England, factories, hospitals and institutions.

The first district installation was built at Lockport, U.S.A., in 1878, and in this town of 10,000–20,000 persons, and chiefly of a residential character, it was apparently quite successful although the conditions would appear adverse. Another scheme at Gorton Blakeley, near Manchester, failed only because the soft water was delivered through cast-iron pipes and, through corrosion, soon became cocoa-coloured and led to local opposition. Another interesting scheme was prepared for Swanpool Garden Suburb near Lincoln, immediately after the 1914–18 war. This scheme for 2,000 houses was to be served from a single heating and generating station and promised considerable economies and advantages. Unfortunately it was not carried out.

At Christ's Hospital, at which a similar combined system is used, hot water is supplied to twenty buildings at a very considerable

DISTRICT HEATING

distance from the generating station and large economies were obtained.

In most American examples steam mains are run in the street at a pressure of about 30 lbs. per sq. in. on one of two systems.

In the first, the mains are laid in trenches, the bottoms of which are drained, the pipes are efficiently insulated and the trenches are then filled in solid again. The drainage is to ensure that the lagging is kept dry, otherwise it loses its non-conducting properties. In the second system, the pipes are run in tunnels or sub-ways. When provided for district heating only, such tunnels are excessively costly, but have many advantages when they can also contain other service mains.

In the larger systems, the distribution at 30 lbs. to the sq. in., which is limited to a main 20 ins. in diameter, is fed at various points from a high pressure main—usually at about 130 lbs. to the sq. in.—so as to boost its pressure to the proper level. Condensation is usually discharged to drain through an economiser, since it has been found that the cost of returning condensation to the boiler is uneconomic.

Although heat is supplied in the form of steam, it is not necessary to use steam heating in the buildings served. The steam can be delivered to calorifiers from which hot water supply and hot water for circulation through radiators can be obtained.

FABER, OSCAR *District heating. Town Planning Institute Journal Vol. xxi No. 5 1935 pp. 135-137 (S)*

DRAINAGE AND SEWERAGE

Design and layout of a sewerage system

Thus a river is a tree-like branching formation on plan, occupying a branching series of valleys. The bed of the river will have a varying gradient, steeper at the top end, flatter at the lower.

The extension of a drainage scheme to include a large river basin is limited by the difficulty of preventing sedimentation in sewers laid to the same fall as rivers and by the need to bring sewage to treatment before it becomes septic. Sewage should not remain in the sewers for longer than about twelve hours and the probable average velocity of flow in a large system would be about 3 ft. per second, and therefore the longest permissible length of sewer would be about 25 miles. Few, if any, regional sewerage schemes approach this limit.

Most sewers, if followed from top to bottom end, will be found to form the whole or part of a curve which, beginning with a small fall, becomes steeper and then flattens out to an even smaller fall. This is because the main sewer usually follows the line of a valley, often parallel to and near a stream; the main branches come off roughly at

right-angles to the main sewer, passing sharply up the sides of the valley; and the subsidiary branches are laid along the hillside parallel to the main sewer or with difficulty finding adequate gradients along the tops of the hills.

This variation of gradient is important in sewer design. At the top ends, where the sewers have little flow, there is little danger of silting. On the other hand these sewers may be surcharged as much as 70 per cent. above designed capacity without risk of flooding. The main branches down the sides of the valleys that have adequate falls are not likely to develop silting troubles, and will stand a certain amount of surcharge. The main sewers in the valleys are those which are most often restricted for fall because of the need to pick up branches and to discharge at a sufficient height to allow of gravitation through the treatment works. These sewers will stand little surcharge and being fed by laterals which at times will discharge at high velocity, are often the localities where flooding occurs.

In towns where zoning is not strict enough, residential growth may take place outside the drainage area providing cesspools are allowed. In time this area will have to be sewered, and will require pumping stations.

The main objections to pumping stations are the high capitalised value of the running cost and the fact that a station, unlike a sewer, cannot deal with any flow in excess of its designed capacity. Storm water pumping is particularly expensive as the machinery might run for only 60 hours in the year.

In the sewerage of a new town, sewers will usually be separate for soil and surface water—the latter discharging to streams at convenient points. When the scheme is complete the plan of the sewerage system will look like a large tree with its trunk connected to the sewerage works. The surface system will look like a number of trees, the trunks connecting at various points to the natural river system.

If the layout of the roads is such that they point in an easy downward direction, more or less towards the area suitable for disposal works, with gradients neither too steep nor too flat, and in such a manner that the drains of the separate streets are brought together without an undue proportion of 'unproductive' linking sewer, the layout is a good one for drainage.

Roads that run across valleys or hollows are particularly difficult to sewer. If a sewer is laid in an undulating road it may be necessary to lay it at great depth. Sometimes it is only possible to drain such a road by making connections from the low points across private property. This is one of the worst forms of road layout from the viewpoint of drainage and is often observed in ribbon development.

The following table gives the limiting gradients for best working

DRAINAGE AND SEWERAGE

conditions in circular sewers producing neither conditions of silting nor conditions of scour :

<i>Diameter</i>	<i>Minimum gradient</i>	<i>Maximum gradient</i>
	<i>1 in</i>	<i>1 in</i>
6	150	27
7	190	33
9	265	46
12	385	67
15	520	91
18	660	115
21	820	140
24	970	170
27	1100	200
30	1300	230
33	1500	260
36	1650	290
39	1850	325
42	2050	360

ESCRIPT, L. B. *The influence of sewerage in regional and town planning. Town Planning Institute Journal Vol. xxviii No. 2 1942 pp. 45-48 (S)*

Sewerage in new towns

To avoid the heavy first cost of sewers and disposal works large enough to take the normal flow of foul water when increased, owing to heavy rainfall, by a volume of surface water many times greater, a separate system of drainage should be provided in garden cities from the beginning. Apart from the saving in cost there are good engineering reasons for this course.

Surface water drains should be placed at convenient points and carried to natural watercourses by routes indicated by contours. Branch sewers for all foul water should follow road lines, adopting so far as possible the general direction of falling ground. This method has initial difficulties which do not arise with the normal 'all in' system, and adds something to the cost of every building, but it is strongly recommended.

Surprisingly small drains will suffice for foul water only. With reasonably good gradients it would be possible, even in a town consuming water on the Welwyn scale, to drain 250 middle-class houses with a 6-inch sewer, which would also keep itself much cleaner than one of larger diameter similarly used. But difficulties of making con-

DRAINAGE AND SEWERAGE

nections to a small pipe make it advisable to use 6-inch pipes only for short lengths at the heads of tributary sewers. A main sewer of 24 ins. diameter on a favourable gradient will carry the whole foul water flow from a town of 50,000 people. In contrast, the capacity needed for the surface water drainage of the same town might be in the aggregate 18 or 20 times greater.

The Welwyn sewers and surface water drains have been calculated on the basis of the following figures. Water consumption is high at Welwyn but rainfall is well below the English average. Sudden storms occur but torrential rain is very rare. There is a quick surface run-off to the valleys of the Lea and Mimram and the subsoil is for the most part pervious.

Units of maximum flow per minute to foul water sewers

From industrial and commercial areas - - - -	-	1.0	cubic foot per gross acre.
From 10 houses to the gross acre	-	0.5	" " " "
" 8	" " "	0.4	" " " "
" 6	" " "	0.3	" " " "
" 4	" " "	0.2	" " " "
" 2	" " "	0.1	" " " "

Units of maximum flow per minute to surface water drains

From industrial and commercial areas - - - -	-	15	cubic feet per gross acre.
From 10 houses to the gross acre	-	10	" " " "
" 8	" " "	8	" " " "
" 6	" " "	6	" " " "
" 4	" " "	4	" " " "
" 2	" " "	2	" " " "

At Welwyn the intercepting trap and accompanying fresh air inlet have been disallowed from the beginning, as the case against the intercepting trap was fully made out in a Departmental Committee report in 1911 (Cmd. 6359).

JAMES, W. E. *Engineering aspects of garden city development.*
Town Planning Institute Journal Vol. xvi No. 8 1930 pp.
 77-78 (S)

Sewerage in rural areas

'5,186 parishes out of a total of 11,186 in England and Wales were entirely without sewerage systems in 1939.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378
 1942 para. 66 (E)

ECCLESIASTICAL COMMISSIONERS

History and functions

The Commissioners were established by Act of Parliament in 1836 to carry out changes in the territorial organisation of the Church of England and distribution of endowments which had been largely unaltered since the Reformation. In 1840, the Commissioners were given their most important powers of suppressing redundant offices and creating from the endowments a common fund for the benefit of parochial clergy. In 1850, three Church Estates Commissioners were added, two of whom were to be salaried and to manage the Commissioners' estates and business, and the third was to be a member of Parliament and answer to the House of Commons for the Commissioners. These three were to be joint treasurers and to form, with two other members appointed annually from the Board, an Estates Committee which was independent of the Board except for general directions on policy. The Commissioners were also ordered to report annually to Parliament and have done so ever since.

The Estates Committee has become the executive committee of the Commissioners who number in all 64 persons—42 archbishops and bishops, 5 Officers of State, 2 judges, 3 deans and 12 laymen. Parochial clergy and the Church Assembly are not represented, although it has been recognised that they should be and it has been agreed to seek the necessary authority. Revision of constitution is, however, entangled with another desirable reform—amalgamation with Queen Anne's Bounty.

The work of the Commissioners covers a wide range. It includes the formation of new parishes and securing of sites for churches and other buildings; alterations of boundaries of parishes; union of benefices; formation of new dioceses and alterations within them; examination of cathedral accounts; increasing the incomes of benefices; grants for new buildings and improvements; and management of estates comprising over 300,000 acres of rural and urban land.

The income of the Commissioners' common fund may be said to be between £3 millions and £3½ millions a year. By far the largest part of this income goes in grants to parochial workers, 12,000 out of the 12,500 existing benefices being assisted. Expenses are just over 2½ per cent. of income.

In 1884, the Commissioners invited Miss Octavia Hill to manage an estate of working class houses which had come into their possession at Walworth and thus can claim some share in the development of the Octavia Hill system of property management by trained women managers. The Commissioners have also given land, or sold

it at a reduced price, for the provision of parks and open spaces in ten London boroughs, as well as in the Provinces.

BROWN, JAMES RAITT *Number One Millbank: the story of the ecclesiastical commissioners.* 1944 (S)

ECONOMIC PLANNING

Defects of a planned economy

The difficulties caused by the ambiguities of common political terms are not over if we use 'collectivism' to include all types of 'planned economy', whatever the end of planning. The meaning of this term becomes more definite if used to mean only that sort of planning which is necessary to realise any given distributive ideals. But as the idea of central economic planning owes its appeal largely to the vagueness of its meaning, its precise sense must be agreed before we discuss its consequences.

'Planning' owes its popularity to the universal desire that our common problems should be handled as rationally and with as much foresight as possible. In this sense everyone who is not a complete fatalist is a planner, every political act is (or ought to be) an act of planning, and there can be differences only between good and bad, foresighted and shortsighted planning. An economist is the last person to object to planning in this general sense. But it is not in this sense that enthusiasts for a planned society now use the term, nor merely in this sense that we must plan if we want the distribution of income or wealth to conform to some particular standard. For this latter purpose, it is not enough to design the most rational permanent framework within which various activities would be conducted by different persons according to their individual plans. What our planners demand is a central direction of all economic activity according to a single plan, laying down how the resources of society should be 'consciously directed' to serve particular ends in a particular way.

The dispute between modern planners and their opponents is not, therefore, over whether we should choose intelligently between the various possible organisations of society, nor over whether we should employ foresight: it is a dispute over the best way of doing so. It is a dispute whether the holder of coercive power should only create conditions under which the knowledge and initiative of individuals is given the best scope so that *they* can plan most successfully; or whether rational utilisation of resources requires *central* direction and organisation of all our activities according to some consciously constructed 'blueprint'.

The socialists of all parties have appropriated the term planning for planning of the latter kind and it is now generally accepted in this sense; and though it carries with it the suggestion that this is the only good way to handle our affairs, it does not of course prove this. It is a point on which the planners and the liberals disagree.

Opposition to this kind of planning should not be confused with a dogmatic *laissez-faire* attitude. The liberal argument favours the best possible use of the forces of competition to co-ordinate human efforts, it is not an argument for leaving things as they are. It does not deny, but even emphasizes, that, in order that competition should work beneficially, a carefully thought-out legal framework is needed. Nor does it deny that where competition cannot be made effective resort must be had to other means. But economic liberalism is opposed to competition being supplanted by inferior methods of co-ordinating individual efforts. And it regards competition as superior not only because in most circumstances it is the most efficient method, but even more because it is the only method by which our activities can be adjusted to each other without coercive or arbitrary intervention of authority.

HAYEK, F. A. *The road to serfdom*. 1944 pp. 25-27 (S)

ELECTRICITY

Location and cost of electricity distribution lines

The main grid of 132,000 volt overhead transmission lines has been largely completed and will be filled in by network of lines at lower voltage for direct supply to consumers. The Weir Committee has also recommended an additional system of 33,000 volt lines for railway electrification.

The situation of main grid lines is not an important factor in the location of industry as such a line would only be tapped directly by a very large consumer. Also, industrial areas are usually placed near railways and there are objections to placing an electrical transmission line near a railway. On the other hand a 33,000 volt line can be tapped frequently and the situation of such lines is relevant to location of industry.

Overhead transmission lines must be kept away from aerodromes.

From the viewpoint of amenity and aviation it is frequently desirable that lines should be parallel to and near railways and such cases exist. The line must be at least $1\frac{1}{2}$ times the height of the tallest mast from any existing wires alongside railways. There exists, however, a danger of interference with telegraph and telephone circuits and even

ELECTRICITY

of injury to operators or users, and the Post Office and the railway companies object even to 33,000 volt lines running parallel to railways a quarter of a mile away. Therefore transmission lines cannot usually be placed alongside railways.

The following Table gives comparative costs of overhead and underground transmission :

Type	Cost per mile		
	Voltage	Underground cables	Overhead lines
One 3-phase circuit in open, flat country -	132,000	£ 15,000	£ 1,400
One 3-phase circuit in hilly country - -	132,000	23,000	1,400
One 3-phase circuit -	33,000	5,000-6,000	450*-800†
" " -	11,000	2,500-3,000	400*-750†
Four wires for low-tension distribution -	230/400	750‡	350-400

* Wooden poles.

† Steel poles.

‡ Average excavation and re-instatement costs in road verges in rural areas.

It has also to be borne in mind that oil insulation is needed for underground 132,000 volt lines and this necessitates oil tanks at every summit, which might be unsightly.

The possibilities of 'under eaves' distribution of domestic current should be explored whenever houses are spaced closely enough.

Detours of overhead lines are sometimes suggested by reasons of amenity. Sudden bends, however, need costly and unsymmetrical straining masts and therefore any detours should be very gradual.

Town Planning Institute and Institution of Electrical Engineers. Joint Committee. Report on overhead electricity distribution and town planning. Town Planning Institute Journal Vol. xviii No. 9 1932 p. 246 (S)

Electricity supply in rural areas

'... according to the evidence of the British Electrical Development Association, it was estimated that in 1939 about one-third of all dwellings in rural district areas were not yet electrified. A large proportion of these were farms and agricultural cottages, which, owing to their isolated position were most difficult to connect. It has been

ELECTRICITY

estimated that only about 25,000 to 30,000 agricultural holdings out of a total of 365,972 were served with electricity in 1938.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 65 (E)

EMPLOYMENT

Decline in number of agricultural workers

Age group	Number of regular male workers		
	1925	1930	1937
Over 21 -	501,694	505,745	454,100
Under 21 -	160,455	139,482	113,700

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 200 (E)

Employment in five declining industries

'Numbers insured in five important declining industries as percentage of total numbers insured in each area. July, 1923.'

	Great Britain	London and Home Counties	Mid-land Counties	West Riding Notts. and Derby	Mid. Scotland	Lancs.	North-umberland and Durham	Glam: organ and Monmouth
Coal mining -	11.2	0.1	8.8	21.0	10.7	6.6	37.6	51.26
Cotton -	5.2	0.0	0.2	3.5	2.5	26.5	0.0	0.0
Wool -	2.4	0.1	0.5	15.1	0.2	0.5	0.1	0.0
Shipbuilding and ship-repairing -	2.2	0.9	0.0	0.1	7.3	1.4	8.9	2.2
Iron and steel manufacturing	2.1	0.05	2.8	3.7	3.6	0.8	2.6	5.6
Total of above five industries -	23.1	1.1	12.3	43.4	24.3	35.8	49.2	59.1

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940, Jones, J. H., Appendix ii p. 268 (E)

EMPLOYMENT

Employment in the building industry

'Insured workers in the building and public works industries, 1918-39 (in thousands)'

	<i>Building</i>	<i>Public Works</i>	<i>Total</i>
(A) United Kingdom, 1918-20:			
September 1918 - - -	—	—	583·7
January 1919 - - -	—	—	554·8
July 1919 - - -	651·9	114·5	766·4
January 1920 - - -	—	—	799·0
July 1920 - - -	794·6	144·3	938·9
(B) Great Britain and Northern Ireland, 1921-27			
July 1921 - - -	790·4	117·6	908·0
„ 1922 - - -	768·8	112·4	881·2
„ 1923 - - -	716·0	127·9	843·9
„ 1924 - - -	726·3	133·8	860·1
„ 1925 - - -	758·9	150·1	909·0
„ 1926 - - -	804·6	166·4	971·0
„ 1927 - - -	847·9	169·3	1,017·2
(C) Great Britain and Northern Ireland, 1927-39 (16-64 only):			
July 1927 - - -	807·2	162·4	969·6
„ 1928 - - -	816·6	160·0	976·6
„ 1929 - - -	826·0	164·4	990·4
„ 1930 - - -	832·3	186·3	1,018·5
„ 1931 - - -	858·2	270·6	1,128·8
„ 1932 - - -	856·9	290·4	1,147·3
„ 1933 - - -	883·8	277·6	1,161·4
„ 1934 - - -	928·2	271·7	1,199·9
„ 1935 - - -	976·8	277·4	1,254·2
„ 1936 - - -	1,019·7	289·3	1,309·0
„ 1937 - - -	1,035·3	294·1	1,329·4
„ 1938 - - -	1,050·1	328·0	1,378·1
„ 1939 - - -	1,041·5	363·6	1,405·1

COLE, G. D. H. *Building and planning*. 1945 Table ii (E)

EMPLOYMENT

Distribution of insured workers by regions

'Distribution of persons insured under the Unemployment Insurance Acts. Great Britain.'

Area	Insured persons (000's)				Proportionate number of insured persons	
	1923	1929	1932	1937	1923	1937
London and the Home Counties* -	2,421	2,802	3,027	3,453	22.4	26.0
Lancashire - -	1,697	1,780	1,840	1,826	15.7	13.8
West Riding, Notts and Derby - -	1,403	1,501	1,559	1,614	13.0	12.2
Staffs., Warwick, Worcs., Leics., and Northants -	1,212	1,332	1,402	1,554	11.2	11.7
Northumberland and Durham -	619	613	652	648	5.7	4.9
Mid-Scotland† -	792	794	832	868	7.3	6.6
Glamorgan and Monmouth - -	457	435	457	437	4.2	3.3
Rest of Gt. Britain -	2,225	2,443	2,631	2,844	20.5	21.5
Total - -	10,826	11,700	12,400	13,244	100.0	100.0

* Bedfordshire, Buckinghamshire, Essex, Hertfordshire, Kent, Middlesex and Surrey.

† Counties of Lanark, Renfrew, Dumbarton, Midlothian and West Lothian.

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 53 and Table 3 (E)

Factors influencing the ratio of male and female employment

The ideal ratio or balance of employment between the sexes must depend upon social attitudes and habits, and within quite wide limits must of necessity vary as these change. In this connection, the revolutionary change in the status and functions of women which has been taking place within the last generation is of great significance.

The acceptability of female labour to employers has always lain mainly in its relative cheapness, while to the wage-earning classes its appeal arose from need to supplement the family income. Female labour is still relatively cheap and this is the main reason why women and girls find employment so easily.

Certain trends in the industrial structure have contributed to increase the employment of women (although the exclusion of women from heavy manual work represents a significant counter-trend). Recent expansion in industry has been mainly in light industries, in which women and girls can play a large part. The heavy and more exclusively male industries have been contracting in employment

capacity. Also, industrial production has tended to become more automatic, and thus a decreasing proportion of jobs require either special muscular strength or a special degree of skill which can be acquired only after long training.

The needs of 1914-1918 accelerated the entry of women into paid work and the present recruitment of women into war work, including conscription, must have social effects that will outlast the war.

As a standard of measurement for comparative study a ratio of one woman salary or wage-earner for every two males may be regarded as 'normal' for England and Wales and as representing the equilibrium of our prewar society. Thus where there are more than three men employed to every woman or fewer than three men to every two women, the indications are that an unbalanced state of employment of the two sexes exists. Localities with such a lack of balance are not rare.

In 1931 rather more than 5 million women and $11\frac{1}{2}$ million men were recorded as gainfully occupied in England and Wales; therefore 30 per cent. of the country's labour force were women. 90 per cent. of the male population above the age of 14 were either occupied or out of work. The corresponding figure for females was 34. This is but little less than the proportion of females who are below the age of 60 and unmarried. It is evident that without a considerable recruitment of married women into paid employment, a trend that would be open to serious criticisms, the ratio of female to male employment for the country as a whole cannot be increased much further.

Wide local and regional variations, however, occur in the relative importance of female employment. There is generally a distinction between urban and rural areas which can be largely explained by two factors. First, the form of the Census which distinguished between females in paid employment and those not so engaged—the latter category including among others all engaged in 'home duties'. Women who live on farms divide their time between household duties and farm work, and their contribution to farm operations is highly important, particularly at certain seasons. Secondly, female occupations in rural areas are limited in scope and quantity, and partly for this reason more women than are really necessary for actual farm work and housekeeping are undoubtedly supported on the farms.

In country towns, shops, offices, personal service and even light industries provide a variety of jobs for girls so that a normal balanced ratio of employment between the sexes is characteristic. Of about 270 such towns with populations up to 50,000, more than 80 per cent. show ratios between 33 and 55 women to 100 men, and in nearly half the ratio lies within 5 of the national average of 44.

A good balance is also typical wherever commercial or other 'central' functions are well developed or a diversified industrial activity obtains. Where the ratio in such places does not conform to the national average it usually exceeds it, on account of the prominence of some manufacturing industry or industries that give special scope for the employment of women. These considerations explain the approximation to the national average of Greater London (54), Birmingham (54), Bristol (50), Cardiff (43) and Newcastle (48) as well as many other commercial and mixed industrial centres. Some other great cities show higher ratios, such as Manchester (61), Leeds (62) and Nottingham (62). Among cities of over 100,000 inhabitants in only a few special cases does the ratio fall below 40.

The Black Country is outstanding among the industrial regions for the excellent balance between male and female employment. Other good examples are Coventry, Rugby, Derby and Sheffield.

Highly specialized industrial settlements tend to swing towards one extreme or the other in the employment of women according to the nature of the basic industry. Few women are employed in mining districts and large numbers in textile manufacturing centres.

But the towns whose work is to the greatest extent based on female labour are holiday resorts and not industrial centres. In all communities where the ratio is abnormal it is in some measure a reflection of lack of balance in the sex composition of the population. Yet the connection between the two sets of distributions is not so much cause and effect as that the underlying basis of both is the variation in scope for female employment.

Throughout the Northumberland, Durham and South Wales coal-fields, as well as over a large part of the East Pennine coalfield and in smaller mining and quarrying areas, the ratio is less than 20 : 100 and in some cases less than 10. Other communities which are ill-balanced are iron and steel, ship-building, tinplating, chemical industries and railway and dockyard towns. The distribution of these, however, is somewhat scattered and they do not usually give rise to low aggregates of female employment deficiency. Outside the coal-fields the principal urbanised area of considerable extent with a low ratio of female workers is Lower Thames-side, which contains about 200,000 workers of whom only one-fifth are women.

In contrast with these, in the textile districts of Lancashire and West Riding and more scattered centres of the North Midlands, the ratio commonly exceeds 60 and in some extreme cases 75. Here only are married women an important element in the labour force.

It is clear, however, that good balance of employment between the sexes in a town or district does not indicate a considerable range of different industries or internal balance between the leading industries.

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It may simply result from the dovetailing of the labour needs of a very limited number of individually extremely unbalanced industries.

There is no doubt that the mining areas of Britain contain the chief remaining concentrations of female labour not yet tapped by industry, and that they are also one of the most important industrial resources possessed by those areas. Assuming one quarter of the total female population to be potential wage-earners, the actual numbers recorded by the 1931 Census show deficiencies as follows:

<i>Area</i>	<i>Female workers</i>		
	<i>Potential</i>	<i>Actual</i>	<i>Untapped surplus</i>
South Wales coalfield - -	147,000	62,000	85,000
Northumberland and Durham coalfield (excluding Tyne-side and Sunderland) - -	109,000	42,000	67,000
Tees-side - - - -	34,000	20,000	14,000
West Cumberland coal and iron fields - - - -	14,000	8,000	6,000
East Pennine coalfield outside textile areas - - -	140,000	73,000	67,000
Totals - - - -	444,000	205,000	239,000

If, however, the womenfolk of mining communities should in any large numbers engage in industry, the relatively high fertility of the population hitherto characteristic of these districts would decline. The amount of female work and the employment of married women has an important bearing upon fertility. Where girls are usually in employment after leaving school their capacity to earn money themselves must always affect their readiness to marry.

There is also a relation between variations in the mobility of labour and those in the employment of women. A family that depends on the earnings of a single bread-winner will obviously be much more able and willing to move in accordance with the bread-winner's prospects of work than a family, or individual members of it, which depends on a pooled income made up of earnings from different industries.

SMAILES, ARTHUR E. *The balance of male and female employment. Town Planning Institute Journal Vol. xxviii No. 4 1942 pp. 148-155 (S)*

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Employment in local industries by regions

Table continued on page 71

	Distributive Trades	Building	Gas, Water and Electricity Supply
London and Home Counties - - -	+ 74.4	+ 41.6	+ 48.9
Midland Counties - - -	+ 69.4	+ 74.7	- 6.1
West Riding, Notts. and Derby - -	+ 75.0	+ 57.5	+ 23.4
Mid-Scotland - - -	+ 44.5	+ 51.2	+ 15.1
Lancashire - - -	+ 50.2	+ 42.8	+ 34.9
Northumberland and Durham - -	+ 59.6	+ 62.7	+ 41.9
Glamorgan and Monmouth - -	+ 74.5	+ 19.8	+ 30.7
Great Britain - - -	+ 66.3	+ 51.4	+ 32.6

'From the 40-45 industries distinguished by the Ministry of Labour it is possible to select seven that are mainly, though not wholly, local industries. . . . The foregoing table shows the percentage rates of change between 1923 and 1937 in the number of insured persons in each of these industries and in all seven taken together. Particulars are given for the country as a whole and for each of the seven areas under consideration. The last column shows the rate of growth (or decline) for all industries taken together.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940, Jones, J. H. Appendix ii p. 271 (E)

Migration and transference of labour from the Special Areas

'... The transference schemes of the Ministry of Labour . . . have assisted considerable numbers of unemployed work people in the Special and depressed areas to find work in other parts of the country. From August 1928 to mid-1937 nearly 150,000 men and 40,000 women were transferred, but it is known that from 1930 to mid-1937 no less than about 50,000 men and 5,600 women returned to the depressed areas after being transferred out by the Ministry. In addition to these transferred under official arrangements many migrated to London, the Midlands, and other districts on their own initiative without Government assistance. Thus, in the 18 months ended mid-1937, some 61,500 unemployed men moved on their own initiative either to take up employment they had found on their own account or to look for employment, while the number transferred by the Ministry in the same period was only about 30,500.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 316 (E)

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Table continued from page 70

<i>Road Transport other than tram and bus service</i>	<i>Tramway and omnibus service</i>	<i>Laundries job-dyeing and dry-cleaning</i>	<i>Bread, biscuits, cakes, etc.</i>	<i>Total seven 'local' industries</i>	<i>Total all industries</i>
+ 24.9	+ 37.2	+ 58.5	- 4.3	+ 54.3	+ 42.7
+ 89.5	+ 189.3	+ 137.7	+ 42.7	+ 67.2	+ 28.2
+ 102.1	+ 149.1	+ 108.2	+ 16.8	+ 68.8	+ 15.0
+ 10.6	+ 92.3	+ 51.7	+ 25.1	+ 42.8	+ 9.5
+ 19.7	+ 142.8	+ 79.8	+ 21.1	+ 47.4	+ 7.6
+ 56.3	+ 258.4	+ 56.9	+ 16.7	+ 62.8	+ 4.7
+ 96.4	+ 196.1	+ 51.6	+ 9.5	+ 58.8	- 4.3
+ 43.1	+ 91.7	+ 66.6	+ 12.4	+ 56.8	+ 22.3

Note.—Italics show a rate of increase equal to, or greater than, the corresponding rate in London and the Home Counties.

Government policy for full employment, 1944

Throughout the period 1858–1938 there was a fairly regular cycle of unemployment—evidence of instability in our economic system. The average level of unemployment after the 1914–18 war was, because of special and continuing problems of the export trades, higher than in the period before 1914. If these defects are to be banished, three essential conditions must be satisfied:

- (i) Total expenditure on goods and services must be prevented from falling to a level where general unemployment appears.
- (ii) The level of wages and prices must be kept reasonably stable.
- (iii) There must be sufficient mobility of workers between occupations and localities.

Maintenance of Total Expenditure. The most serious obstacles to the maintenance of total expenditure lie in these highly inconvenient facts:

First, those elements in total expenditure which are liable to fluctuate most—private investment and the foreign balance—happen to be the elements which are most difficult to control.

Secondly, an increase in one part of total expenditure can only within limits offset a decrease in another. E.g. If the building of new factories falls off and building labour is thrown out of work, it may be useful to encourage the purchase of clothing, but it would be idle to expect the building labourers to turn up next day ready to handle sewing machines in the clothing factories. Again, if important British exports declined sharply, it would be essential to find alternative exports to fill the gap: expansion of internal demand would not by itself be the right remedy and, indeed, if applied too vigorously, might lead to inflation.

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The guiding principles of the Government's policy in maintaining total expenditure will be as follows :

(i) To avoid an unfavourable foreign balance we must export much more than we did before the war.

(ii) Everything possible must be done to limit dangerous swings in expenditure on private investment—though this may be very difficult to achieve.

(iii) Public expenditure, both in timing and volume, must be carefully planned to offset unavoidable fluctuations in private investment.

(iv) We must be ready to check and reverse the decline in expenditure on consumers' goods which normally follows as a secondary reaction to a decline in private investment.

Stability of Wages and Prices. If we are to operate successfully a policy for maintaining a high stable level of employment, it will be essential that employers and workers should exercise moderation in wages matters, so that increased expenditure provided at the onset of a depression may go to increase the volume of employment. This does not mean that every wage rate must remain fixed at a particular level.

It does mean, however, that increases in the general level of wage rates must be related to increased productivity caused by increased efficiency and effort. Similarly, an increase in prices from causes other than increased wages might frustrate Government action to maintain employment.

Stability of wages and stability of prices are inextricably interconnected. If wage rates rise and there is a corresponding increase in prices of goods for civilian consumption, the individual wage earner will be no better off and there may be no increase in the total amount of employment. Thus the stability of the two elements is vital to the success of employment policy and that condition can only be reached by joint efforts of Government, employers and organised labour.

Mobility of Labour. Even if there is an adequate overall demand for labour, maintained by a total expenditure big enough to provide every worker with a job, it does not follow that unemployment will disappear altogether. Change will always be going on : new industries will be starting, new processes replacing old. Numbers of people will therefore be registered as unemployed at Employment Exchanges on any particular date. If short-term unemployment is to be reduced to the minimum every individual must use to the full his own initiative in adapting himself to changing circumstances. The Government will help by encouraging training schemes within individual factories for new entrants, expanding its own Training Centres, and developing facilities available in Technical Colleges.

Re-training for the unemployed workers will be provided directly

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it is clear to the Ministry of Labour that the worker is not likely to be able to resume his former employment within a reasonable time: there will be no long wait as often occurred in the past. Training allowances will be on a higher scale than unemployment benefit.

For this scheme to be a success all sections of industry must be ready to admit trainees, provided proper steps are taken to train them to a standard which will justify payment of the recognised rates of wages and the number of trainees does not exceed the number capable of being absorbed in a particular industry.

Obstacles which before the war prevented workers moving to places where suitable employment was available must be overcome, although the Government does not contemplate large-scale labour transference for the solution of the unemployment problems of particular areas. Two of the big obstacles have been the difficulty of finding a suitable house to rent in the new area and special costs which fall upon the new arrival while he is settling down. Both these points will be looked to after the present war.

*Minister of Reconstruction. Employment policy. Cmd. 6527
1944 paras. 31-56 (S)*

Unemployment by area and length of unemployment

'... an analysis by the Ministry of Labour of male applicants for unemployment benefit or unemployment allowances at 1st May, 1939, who had been continuously on the registers of unemployment exchanges for various periods.'

Total	Ministry of Labour Division	Number of male applicants at 1st May, 1939	Percentage of male applicants at 1st May, 1939, who had been continuously on registers for undermentioned periods					
			Less than 1 yr.	1 yr. but less than 2 yrs.	2 yrs. but less than 3 yrs.	3 yrs. but less than 4 yrs.	4 yrs. but less than 5 yrs.	5 yrs. or more
100.0	London - -	145,510	91.6	5.2	1.7	0.8	0.4	0.3
100.0	South-Eastern -	66,768	92.1	4.4	1.8	1.1	0.3	0.3
100.0	South-Western -	51,717	90.9	4.6	1.7	0.9	0.6	1.3
100.0	Midlands - -	113,006	80.1	8.8	3.6	2.1	1.6	3.8
100.0	North-Eastern -	122,213	79.8	8.1	4.1	2.8	1.5	3.7
100.0	North-Western -	215,544	73.7	9.5	5.3	4.5	2.1	4.9
100.0	Northern - -	118,852	66.7	11.5	5.6	5.0	2.6	8.6
100.0	Scotland - -	160,990	68.7	10.2	5.8	6.8	2.1	6.4
100.0	Wales - -	109,746	66.9	11.5	5.6	3.9	2.9	9.2

*Royal Commission on the Distribution of the Industrial Popu-
lation. Report (the Barlow report). Cmd. 6153 1940 para.
350 (E)*

ESTATE MANAGEMENT

Financial problems of war-damaged towns

Local authorities will doubtless make good use of the powers to buy land for miscellaneous planning purposes which are contained in Section 10 of the Town and Country Planning Act, 1944. Some authorities think the provision too limited. Resentment has been expressed that a local authority cannot purchase if some other person is willing to develop on the desired lines. When an area is developed or redeveloped, some part of it will be profitable; others will not earn enough to meet the capital charges. Local authorities should be allowed to benefit from the former class, as a set-off to the inevitable losses on the latter.

Among important practical questions likely to be raised by more extensive purchases of land for redevelopment by local authorities are the desirability of loan periods longer than 80 years for the purchase of land which is likely to be remunerative, and whether some more flexible agency than the Public Works Loan Board is needed for supplying capital monies.

Damage by enemy action has thrust the local authorities of blitzed cities into estate development on a grand scale. Theoretically, provided land is bought at a proper price, is well developed and managed in a businesslike way, the ultimate income from ground rents should meet the outgoings—principally loan charges and administrative expenses. To what extent is such a balance likely to be achieved in practice?

In the case of redevelopment under the 1944 Act, important factors are likely to tell against the ultimate balancing of expenditure by income. These include:

(a) The acquisition price may include an element of floating value. (The site value, in the case of blitzed properties, will be that placed on the site for War Damage purposes. Complaints have been heard that sites are being valued too highly, thus reducing the compensation payable on the buildings.)

(b) Many blitzed central areas are now largely derelict, recovery may take a long time, and delay encourage trade to flow elsewhere.

(c) The threat of public acquisition discourages enterprise in the area, and acquisition may take a long time. It may not be possible to allocate a site promptly to a developer and this may drive away trade.

(d) The development account will have to bear costs of clearance, civil engineering works, etc., in addition to land acquisition costs. Even if the total rent paying capacity is as good as in 1939, it may not be enough to meet these extra costs.

(e) Land values in 1939 may have been at peak. Creation of new towns, diversion of industry from large towns, and a falling population may bring a smaller volume of trade to some city centres.

(f) Errors of judgment may occur. Too much land may be devoted to civic purposes.

(g) It will be difficult to draw the boundaries of the land to be acquired so as to be sure values do not escape into rival shopping centres on privately owned land. My view is that it is wise to acquire too large rather than too small an area.

(h) The income from ground rents must cover sinking fund repayments, as well as interest and expenses, if deficiencies are to be avoided. There is, however, some justification for the view that part of the sinking fund repayments should fall on the ratepayers at large, since the town is gradually buying some of the most valuable land in the area.

(i) There is the difficulty of fixing ground rents at a proper level. This point is referred to below.

(j) There is a special problem where the density of an area is to be reduced and populations decanted. It seems to me very likely that in such cases there will be an ultimate loss.

(k) Where blitzed premises cannot be rebuilt on the same site, the owner receives a 'value payment' instead of a 'cost of works' payment from the War Damage Commission. At present prices, the former is likely to be less than the latter. This 'non-transportable cost of works payment' is likely to hinder redevelopment.

(l) Finally Section 19 (6) of 1944 Act, which provides that land should be so disposed of that persons seeking reaccommodation in the area should be reaccommodated with due regard to the price at which land on which they were formally situated has been acquired from them, may operate to depress ground rents in such cases.

Against these factors may be set some more promising ones:

(a) The new layout will be much better than the old, building sites will be bigger and better shaped, and thus the aggregate ground rents in the shopping area are likely to be increased.

(b) The improved layout may attract trade from neighbouring areas.

(c) There is astonishing recuperative power in a prosperous town.

(d) The replanning is likely to bring an increase in rateable value.

The following are among the steps which a local authority ought to take to ensure their schemes are as near self-supporting as possible.

The authority should try to carry the business community with it at all stages of redevelopment, and full discussions should take place at an early stage.

The plan should be flexible and thus be capable of adjustment to changing needs.

The authority should aim at making certain definite decisions as soon as possible. Traders should be told how long a tenure they may expect before their properties are needed for demolition, and those who wish to re-establish business, but cannot occupy their old site should be offered definite alternative sites.

Care is also needed in deciding the order in which land is to be acquired. Much care will be needed in fixing ground rents. Rents too high or too low are equally to be avoided. There is much to be said for a periodical review of ground rents, if proper safeguards can be devised. Length of leases is also important.

When the Birmingham scheme was initiated, leases were granted for 75 instead of the usual 99 years. Mr. Joseph Chamberlain, in advocating the shorter term, maintained that it would make an enormous difference to later generations but little to developers—the difference in amount of a sinking fund for 75 and 99 years being a mere fraction. Planning authorities should also consider whether, in the interests of future planning, they should not try to arrange that all leases in a given part of the area should expire at the same time.

I consider that the provision of temporary shopping accommodation on a sufficient scale will be of great consequence to the recovery of a blitzed area. Such shops will be useful for decanting purposes when redevelopment begins, as well as meeting the immediate shortage. If they are well designed they will be a most important psychological stimulus to the town.

The financial position during the period of redevelopment is incalculable. The simplest Government grant policy would have been to limit the local authority liability in any one year to an agreed maximum and for the State to find the balance. Eventually this may happen. In the meantime, Government departments have the thankless task of trying to operate the grant pattern laid down in Section 5 of the 1944 Act.

Among matters of policy in connection with redevelopment schemes, of which most have financial implications, are the following:

(a) Local authorities must decide whether they will leave islands of private enterprise in reconstruction areas. Where a site is occupied by a very expensive building and it does not seem necessary to disturb the site for planning reasons, is acquisition of the site financially justifiable? It will add naturally to the capital cost of acquisition: on the other hand, there should be no ultimate loss providing the rent is enough to repay the loan during the building's life.

ESTATE MANAGEMENT

(b) Local authorities must decide to what extent they intend to erect commercial buildings themselves. The Act of 1944 implies that private developers are to build the buildings, and no grants are available to local authorities towards losses on buildings. But there may be cases where it is desirable for local authorities to build.

(c) The proportion of redevelopment area to be used for civic purposes needs careful decision. It would seem unwise to be too liberal in this matter.

(d) As the local authority is going into the business of estate development on a large scale, the necessary administrative machinery must be set up. In particular, a competent estate officer should be appointed.

It is at present difficult to make accurate estimates of the finances of blitzed areas, but the job must not be avoided on this account. Finance will be of paramount importance throughout the life of the scheme. If ground rents are later found to fall below the estimate, the scheme must be re-examined in a realistic manner.

Details of three estate schemes of local authorities

Huddersfield. In 1920 Huddersfield acquired 4,200 acres at a price of £1,334,959, financed by an 80 years' loan. Most of the leases are for 999 years, a few being for 99 years. The following table indicates the income and expenditure of the scheme to date:

<i>Year ended 31st March</i>	<i>Annual Revenue</i>	<i>Loan Charges</i>	<i>Other Outgoings</i>	<i>Total Outgoings</i>	<i>Surplus + Deficit -</i>
	£	£	£	£	£
1922	78,469	59,500	34,572	94,072	- 15,603
1925	81,421	47,658	30,163	77,821	+ 3,600
1929	85,654	45,304	30,290	75,594	+ 10,060
1930	88,277	62,177*	19,233	81,410	+ 6,867
1935	101,734	58,347	20,559	78,906	+ 22,828
1940	97,651	42,542	44,225	86,767	+ 10,884
1945	106,313	42,164	53,515	95,679	+ 10,634

* Interest shown gross from here.

Birmingham. This scheme was initiated in 1878 and combined planning improvements with important sanitary reforms. The original leases were for 75 years. The original capital cost was £1,743,000, the bulk of which was met by a 60 year loan. The scheme became self-supporting in 1937. The deficiency during the initial period up to March 1892 (£117,000) was charged to capital and is included in the figure above.

The following table indicates the financial position since 1895:

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<i>Year ended 31st March</i>	<i>Annual Revenue</i>	<i>Loan Charges</i>	<i>Other Outgoings</i>	<i>Total Outgoings</i>	<i>Surplus + Deficit -</i>
	£	£	£	£	£
1895	55,104	68,000	8,161	76,161	- 21,057
1905	62,411	70,918	8,133	79,051	- 16,640
1915	63,142	70,154	10,009	80,163	- 17,021
1925	71,667	69,612	20,189	89,801	- 18,134
1935	75,993	64,849	22,523	87,372	- 11,439
1945	66,677	4,893	47,967	52,860	+ 13,817

L.C.C. Kingsway Improvement (Holborn to Strand). The Council sought powers to carry out the scheme in 1899. It involved the clearance and improvement of about 28 acres, of which $12\frac{1}{2}$ were taken for new streets, and $15\frac{3}{4}$ left for building purposes. The gross capital was £5,000,000. The scheme is expected to show an annual surplus in 1955, rising to £144,000 in 1965, and by 1986 the accumulated deficit will be entirely cleared off.

The following figures indicate the financial position :

<i>Year ended 31st March</i>	<i>Annual Revenue</i>	<i>Loan Charges</i>	<i>Other Outgoings</i>	<i>Total Outgoings</i>	<i>Surplus + Deficit -</i>
	£	£	£	£	£
1900	—	2,886	—	2,886	- 2,886
1910	26,903	175,527	2,903	178,430	- 151,527
1920	44,725	137,330	332	137,662	- 92,937
1930	113,960	119,978	867	120,845	- 6,885
1940	144,829	206,911	—	206,911	- 62,082
1945	134,689	187,297	—	187,297	- 52,608

MARSHALL, A. H. *Town planning finance: with particular reference to 'blitzed' cities.* 1946 (S)

Recommendations concerning war damaged towns

'From the estate development point of view, important objects of a redevelopment plan are that :

(i) The size of the central area should be carefully planned to afford reasonable space for its various activities. Too large an area might lead to concentration of development in favoured spots, with gaps between, which would hinder the recreation of values.

(ii) The boundary of the central area should be clearly defined, e.g., in larger towns by an inner ring road, which would, *inter alia*, prevent undue linear extension of the shopping area. For shops a fairly compact grouping is desirable.

(iii) Within the area there should be a well-balanced distribution of intensity of use, and thus of values, throughout each use-zone. In order to prevent the recurrence of the pre-war tendency for peak

values in central areas to be concentrated in one spot, the aim should be to achieve high values at several points and reasonable gradations of value elsewhere.

(iv) Within the area ease of access from public service vehicles greatly influences values both of shopping streets and of individual sites.

(v) Shops should be so grouped that continuous frontages of convenient length are obtained on both sides of shopping streets. It is a disadvantage if the line of shop fronts is broken by banks, post offices, etc.

(vi) The pre-war popularity of specially designed office buildings is likely to continue and increase. Provision of offices over shops should, therefore, be based on conservative estimates of future demand.

(vii) A variety of shapes and sizes of site should be provided to meet the varying needs of users.

'The early stages of the redevelopment process, while primarily aimed to promote the quick recovery of trade, should not conflict with long-term needs. Accordingly, so far as possible, temporary, no less than permanent, development should fit in with the distribution of land uses and values which the plan seeks to bring about. Otherwise there will be renewed unsettlement later on.

'The first commercial buildings to be rebuilt should be located in well-distributed groups to assist the later infilling of the commercial area.

'For the advantage of the redevelopment process as a whole, the Local Planning Authority may from time to time rightly dispose of a site at less than the highest obtainable rent.

'The long-term plan of redevelopment should be executed in a series of short-term programmes, with provision for periodic review and adjustment.

'Temporary shopping accommodation may be provided by adaptation, by erection of temporary buildings and by erection for the time being of the ground floors only of multi-storeyed buildings.

'Temporary buildings should only be given a very short 'life' and then demolished. The best way is for all temporary buildings to be located on land owned by the Local Authority, and let on a short term agreement with a possible yearly extension thereafter.

'There are drawbacks to the erection of the ground floors only of multi-storeyed buildings, and in most towns the number needed is likely to be small. Most of the buildings needed will be of 1, 2 or 3 storeys and speedy erection will be best secured by using simple construction and postponing completion of permanent shop fronts, fixtures and fittings.

'If well administered, the leasehold system of large estates has substantial merits; among others, it provides for a division of function between the landlord, who lays out and manages the estate in accordance with a long-term policy, and lessees who attend to the building development.

'The break-up of large urban estates has contributed to an increase in incongruous use and a decline in standards of amenity; and has hindered adequate redevelopment.

'The Town and Country Planning Act, 1944, enables Local Planning Authorities in their management of estates to reintroduce the system of considered guidance over large areas.

'In view of the need for periodic redevelopment, we recommend that lessees should 'write off' buildings over the period of their useful life.

'The length of lease of building sites in a central area should be governed by the likely period of useful life of the proposed development as a whole.

'The general run of buildings in central areas will almost certainly be obsolete well before the end of 99 years. We therefore recommend that leases for commercial and industrial buildings in them should usually be granted for an average term of 75 years.

'If regarded as part of a well-considered policy for keeping central areas abreast of modern conditions, the proposed shortening of the lease period should not adversely affect values.

'The case for a review, at some later date, of ground rents in war-damaged central areas is based on the abnormal uncertainty which is likely to exist concerning the rental value of the land at the time when disposals are made.

'We recommend that provision should be made in the lease for a single review of ground rents in any war-damaged central area for which the Minister of Town and Country Planning considers such provision necessary.

'The review could suitably take place according to the circumstances of the area, between the 10th and 20th years from the granting of the first lease therein. The purpose of the review would be that the rent terms should be looked at in the light of values that had become reasonably stabilised.

'The shortage of accommodation in war-damaged central areas will probably make it necessary to retain for the time being all buildings capable of further use. Existing buildings which in use or location conflict with the plan should be given only a short life and let at rack rents. Commercial and industrial buildings which are in conformity with the plan and are suitable for the grant of a longer life, may be let at rack rents up to 14 years or, in certain cases, for longer periods.

The term of lease granted for an existing building should never exceed that granted for neighbouring new buildings.

'When development takes place under a building lease, the developer obtains an immediate estate in the land, i.e., before the building is erected. This is a disadvantage in the event of the lessee's default. Under a building agreement the developer has no estate in the land until the building is completed. An agreement can also be made non-transferable; and this effectively discourages persons who have no real intention of carrying out the development but hope to be able to transfer the agreement at a profit.

'We therefore recommend that Local Planning Authorities should dispose of land by means of building agreements followed by the grant of ground leases when the buildings have been erected. We see much advantage in the use of standard forms of building agreement and ground lease in so far as established local custom allows, and suggest that the Minister issues models for general guidance.

'The preparation and execution of a redevelopment plan require the collaboration of a number of specialist officers. In the matter of disposals and subsequent management of land an Authority's estate officers, as members of the team, should play a major part.

'The estate management organisation of a Local Authority can take the form of either a new Department or a self-contained Section added to an existing Department. The estate department should be in the charge of officers with recognised qualifications in estate management. Their advice on policy should be given proper weight, and they should have reasonable freedom of judgment and decision in the day to day work of management.

'In matters of estate management the dealings between a Local Authority and developers should be that of partners in a joint undertaking. We recommend that early attention should be given to recruiting suitable officers.'

Ministry of Town and Country Planning Central Advisory Committee on Estate Development and Management. Report. Estate development and management problems in war-damaged areas. 1947 pp. 43-47 (E).

FACTORIES

Increase of factories: London and Gt. Britain

GREATER LONDON

<i>Year</i>	<i>Factories opened</i>	<i>Factories closed</i>	<i>Net increase in number of Factories</i>	<i>Factories extended</i>
1932	261	94	167	44
1933	218	107	111	29
1934	235	164	71	50
1935	215	185	30	54
1936	256	164	92	61
1937	215	154	61	69
Totals	1,400	868	532	307

GREAT BRITAIN

<i>Year</i>	<i>Factories opened</i>	<i>Factories closed</i>	<i>Net increase in number of Factories</i>	<i>Factories extended</i>
1932	636	418	218	174
1933	467	416	51	109
1934	520	502	18	151
1935	514	485	29	201
1936	542	394	148	185
1937	541	361	180	237
Totals	3,220	2,576	644	1,057

(Figures refer to factories which employed or had employed 25 or more persons.)

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 344 (E)

HOLIDAYS

Future need for holiday accommodation

In 1937 about 4 million out of $18\frac{1}{2}$ million insured workers were entitled to holidays with pay, plus about $\frac{3}{4}$ million salary earners with over £250 a year. By March 1938 the number of insured workers with paid holidays had risen to about $7\frac{3}{4}$ millions; 3 millions of these, compared with $1\frac{1}{2}$ to $1\frac{3}{4}$ million the year before, were manual workers covered by collective agreements. It is estimated that at present the number of work-people covered by collective agreements is $6-6\frac{1}{2}$ millions, and those covered by Trade Board and Agricultural Wage Board Orders is $2-2\frac{1}{2}$ millions. The number of workers granted paid holidays by individual firms or in some other way, estimated by the Amulree Committee at about $4\frac{3}{4}$ millions, has probably been reduced, since it included a large number of shop assistants now covered by collective agreements.

The number of people in Great Britain who took a holiday of one or more weeks away from home in 1937, has been estimated at about 15 millions out of the total population of 46 millions.

It is very difficult to estimate the demand for holiday accommodation in this country in the first few post-war years, but it is likely to be high—perhaps 30 millions will want to take holidays in the first post-war year, rising to 45 millions in later years.

To meet this demand holiday accommodation will have to be increased, and a determined effort made to change the custom and necessity of concentrating holidays into July and August. It has been calculated that if the greater part of the population went away and if there were no more staggering than in 1937, about 5 millions would at the peak be seeking accommodation at one time. This could, it is estimated, be reduced to between 2 and 4 millions by spreading holidays between May and October. This compares with a pre-war peak of about $1\frac{1}{4}$ millions.

Blackpool received about 7 million visitors a year pre-war, including day trippers, and had accommodation for about $\frac{1}{2}$ million. Southend received about $5\frac{1}{2}$ millions, Eastbourne over a million, Bournemouth and Southport about 2 millions each and Hastings nearly 3 millions.

The immediate post-war problem could be met by the conversion into holiday centres of some of the Government accommodation for civilian war-workers and temporary hostels built to accommodate bombed-out families, which contain a total of between 128,000 and 145,000 places. The growing popularity of holiday-camps would assist the utilisation of this accommodation. Unwanted service camps, whose total capacity probably exceeds that of any other type

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of war-time accommodation, might also be used, as well as some of the larger country houses which are no longer inhabited by their original owners.

The minimum pre-war cost of a week's holiday for a man, wife and two children was about £10, including amusements and home rent. Inclusive charges per head per week at commercial holiday camps were about £2 10s., those at voluntary associations' camps being about 10s. a week cheaper. Charges on the whole were too high for many families whose wage-earner got a paid holiday.

Relevant figures for chief holiday resorts in England and Wales:

	Population 1911	Population 1931	Per cent. occupied males over 14 in personal service	As 3 but for females	Per cent. total males over 14 retired	Total Lodging and Boarding- house keepers	Total Inn, Hotel- keepers, and Publicans
	1	2	3	4	5	6	7
Brighton -	135,000	147,000	8.6	52.5	6.9	1,167	607
Southend -	71,000	120,000	5.3	47.0	3.4	814	179
Bournemouth -	82,000	117,000	9.5	61.5	10.8	1,903	288
Blackpool -	61,000	101,000	10.4	55.5	8.6	3,967	240
Southport -	70,000	79,000	5.3	53.0	9.0	818	104
Hastings -	61,000	65,000	8.0	58.5	10.4	783	202
Eastbourne -	53,000	57,400	10.4	62.8	8.1	805	142
Poole -	39,000	57,200	4.5	55.0	7.4	119	94
Hove -	43,000	55,000	8.3	63.5	10.4	540	114
England and Wales -	36,000,000	40,000,000	3.54	34.5	5.5	79,364	107,241

P.E.P. (Political and Economic Planning). Planning for holidays. Broadsheet No. 194 1942 (S)

Sizes of holiday camps

The camps being built by the National Camps Corporation are designed to hold 350 children in peace time, and about 700 under evacuation conditions, on sites of 20-30 acres. The C.P.R.E. suggest 300-500 persons, and consider that a much larger camp would upset the balance of a village or rural area and harm local amenities, while a much smaller one would probably prove uneconomic.

The camps exhibited at the Camps Exhibition at the Housing Centre, 1939, were of the following sizes:

Civil Service Holiday Camp, Corton	-	500 persons	35 acres
Workers' Travel Assoc'n Camp, Corton		360	36

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Proposed camp: Dr. Thomas Adams
and F. H. Littler - - - - - 360 persons 85 acres

Proposed Camp: Miss Loehenberg and
C. J. Curtis - - - - - 450 children 55 „

Proposed Camp for Lambeth Borough
Council: Max Lock and Miss J.
Ledeboer - - - - - 500 persons 50 „

On the other hand, the L.M.S. Prestatyn Holiday Camp, on a site of 55 acres is planned for initial occupation by 2,000 persons, and ultimately 3,000 may be provided for.

*Town Planning Institute Journal. Holiday camps. Vol. xxv
No. 12 1939 p. 370 (S)*

HOSPITALS

Statistical summary of voluntary hospitals

BEDS

Area	Hospitals in Directory			Hospitals which supplied figures		
	Number of hospitals	Number of beds on normal establishment	Number of beds*	Number of hospitals	Available beds, i.e. excluding those temporarily closed	
					Number	Percentage of total number of beds (col. 4) 7
1	2	3	4	5	6	7
London -	183	21,317	18,985	157	15,147	79.78
Provinces -	744	61,841	80,804	502	59,826	74.03
Scotland -	124	10,636	14,321	54	10,603	74.03
Ireland -	61	6,214	6,657	29	3,247	48.77
Total -	1,112	100,008	120,767	742	88,823	73.54

* Including those in the Emergency Medical Service.

NEW PATIENTS IN 1941

Area	Hospitals	Available beds	New in-patients	New out-patients	Total new patients
London -	157	15,147	163,941	1,233,334	1,397,275
Provinces -	502	59,826	799,574	3,340,014	4,139,588
Scotland -	54	10,603	147,959	523,806	671,765
Ireland -	29	3,247	48,007	216,249	264,256
Total -	742	88,823	1,159,481	5,313,403	6,472,884

HOSPITALS

OCCUPIED BEDS AND PATIENTS IN LARGE GENERAL HOSPITALS

<i>Group of hospitals</i>	<i>Available beds</i>	<i>Percentage occupied</i>	<i>New in-patients</i>	<i>New out-patients</i>
Associated with medical schools - - -	17,942	63.95	270,128	1,617,425
Hospitals containing:				
200 or more beds - -	26,702	59.70	253,230	1,478,635
150-199 beds - -	5,165	60.89	69,899	353,205
125-149 " - -	5,203	57.39	62,724	258,139
Total - - -	55,012	60.98	755,981	3,707,404

RECEIPTS AND EXPENDITURE

<i>Area</i>	<i>Receipts</i>	<i>Expenditure</i>
	£	£
London - - -	5,351,838	4,449,123
Provinces - - -	11,767,384	10,557,899
Scotland - - -	1,827,620	1,673,798
Ireland - - -	465,350	485,451
Total - - -	£19,412,192	£17,166,271
Surplus - - -	£2,245,921	
1940 figure -	£1,763,103	

British Hospitals Association. Hospitals year-book, 1943-44. pp. 19-20 (E)

HOUSING

Dwellings for old persons

The number of old people in Great Britain is increasing. In 1900 there were 1,750,000 persons over 65, in 1937 over 3,750,000, in 1941 about 4,300,000. In 1951 it is expected to be 5,500,000. Expressed as percentages of the whole population the figures are: 1937—8½, 1941—9½, 1951—11½.

Institutions will continue to care for old people who are unable to look after themselves, but it is to be expected that in future a larger proportion will need independent housing accommodation. More small dwellings will be needed for this purpose. 48,800 such dwellings have so far been built by local authorities, or 4.2 per cent. of the total of municipal houses, and a larger proportion is likely to be needed.

Old people's dwellings should not be segregated and should be

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near churches and shops. A few small dwellings might be put in every street.

Accommodation may be provided in separate dwellings, small groups of dwellings with some communal facilities—such as reading room, laundry and garden—or in hostels. In the latter case, 20 to 30 old people per hostel has proved to be a good size.

Ministries of Health and Town and Country Planning. Design of Dwellings Sub-Committee of the Central Housing Advisory Committee. Report (the Dudley report) Design of dwellings. 1944 Part 1 paras. 101–105 (S)

Housing daylighting and density

Space about dwellings is needed for several important reasons—for light and ventilation, prevention of fire, access and amenity.

Both sunlight and daylight are needed. Proper sunlight penetration is partly secured by orientation and partly by allowing enough space between buildings. There is no perfect orientation for buildings, but aspects in the quarter between N.W. and N.E. should be avoided for habitable rooms in dwellings.

For adequate daylight in rooms, it is necessary to have a clear view of the sky from most normal positions within the room and not only from near the window. This view depends on the size and position of the window and on external obstructions. A reasonable working rule is that there should be no continuous external obstruction which will increase the angle of light from sill level to more than 15–18 degrees. Light which passes sides of buildings or comes between them is valuable because it comes at a low angle and thus penetrates farther into a room, so that, where it is impossible to plan for an angle of obstruction of less than 18 degrees, a broken skyline caused by gaps in a line of buildings is better than an unbroken one. This arrangement can be systematised, particularly in the case of blocks of flats, and has been so used on the continent, both for lighting and securing longer views.

Recognition of the value of the gap as regards flat design may be taken as far as the establishment of building shapes designed to take special advantage of it.

For the purpose of comparing plan types, it is necessary to have some means of stating density in terms of building bulk, and for this what is called the floor-space-index is a good method. The floor-space-index is the ratio of the total floor space of all floors of a building or group of buildings to the total site area including roads and incidental open spaces. It can be shown that for a given floor-

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space-index for a given site, an increase in the height of buildings laid out in parallel blocks (which would require a corresponding increase in the distance between them) is accompanied by an increase in daylight and also in the amount of open space available per flat. And by turning every second block through 90 degrees where other factors allow, increases of light penetration up to 50 to 70 per cent. can be obtained in blocks of flats with a floor-space-index of 1. Similarly it can be shown that the cruciform, Y and (broken) H shapes are superior to the closed courtyard type of layout.

The application of the requirement of a 15-18 degree angle of obstruction to ordinary two-storey housing shows that higher densities than those usually accepted can be satisfactory as regards daylighting. The obstruction presented by the roof has a marked effect on the spacing of blocks of houses. A 15 degree angle of obstruction subtended to table height at a depth of penetration of 15 feet, will require a distance of 73 ft. 6 ins. between houses 16 ft. high to the eaves and with a 45 degree roof-pitch; with a 30 degree pitch the distance would be 52 ft. 6 in.; with a flat roof it would be 42 ft. 6 in. These distances give net-densities of 22, 28, and 32 houses per acre, assuming houses with 20 ft. frontages and 25 ft. depth. Though these figures are satisfactory for lighting they may not permit provision of proper outdoor amenities for house occupants, and therefore show the unsoundness of basing any argument for low housing density on grounds of daylighting or any other single amenity. But they also show that some densities imposed in the past have been unnecessarily low as regards daylighting, and that it is unreasonable to apply them in central area redevelopment where some reduction in open space standards is justifiable on other grounds.

It has become obvious that zoning for not more than a given number of houses per acre over large areas has resulted in nearly every house in those areas having an amount of land attached to it which makes its individual density much the same as the average density. This is unsatisfactory. Henceforth three separate measures of density or planning control may be necessary.

(1) A population density for every neighbourhood. (2) A floor-space standard applied to defined areas (e.g. areas of 100-300 houses, on the lines of the land-units under which housing densities have been calculated in past town-planning schemes). (3) A control to safeguard the lighting and amenity space for every building.

Ministries of Health and Town and Country Planning. Design of Dwellings Sub-Committee of the Central Housing Advisory Committee. Report (the Dudley report). Design of dwellings. 1944 Part 2 paras. 28-33 (S)

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Housing density

'Housing Density. 1931 Census. Towns in England and Wales of over 200,000 population :

Town	Population	Acreage	Population per acre	Houses per acre (at 4 persons per house)	Percentage of total area needed to house total population at 50 persons per acre, i.e. 12½ houses per acre	Percentage of total area thus left available for industrial buildings open spaces, etc.
Bradford - -	298,041	24,343	12	3	25	75
Leeds - - -	482,789	38,105	13	3	26	74
Stoke-on-Trent - -	276,619	21,209	13	3	26	74
Sheffield - - -	511,742	34,151	15	4	30	70
Croydon - - -	233,115	12,617	18	4	37	63
Cardiff - - -	223,648	11,984	19	5	37	63
Birmingham - -	1,002,413	51,147	20	5	39	61
Bristol - - -	396,918	19,674	20	5	40	60
Kingston upon Hull	313,366	13,050	24	6	48	52
Nottingham - - -	268,801	10,936	25	6	49	51
Leicester - - -	239,111	8,582	28	7	56	44
Manchester - - -	766,333	27,257	29	7	57	43
Portsmouth - - -	249,288	7,964	31	8	62	38
Newcastle upon Tyne	283,145	8,458	33	8	67	33
Liverpool - - -	855,539	24,795	34	8	68	32
Plymouth - - -	208,166	5,711	37	9	73	27
Salford - - -	223,442	5,202	43	11	86	14
London (L.C.C.) -	4,396,821	74,850	58	14	117	- 17
West Ham - - -	294,086	4,689	62	15	125	- 25

*Town Planning Institute Journal. Densities in large towns.
Vol. xxi No. 1 1934 p. 26 (E)*

Housing in urban redevelopment

Most old towns show signs of clearly defined periods of growth, e.g. (1) The central areas, now no longer residential; (2) the rings of high density housing, which usually contain houses and flats over 50 years old and a few houses at a lower density; (3) suburban areas of mixed private and subsidized housing on cheap land and outlying residential estates mostly built from 1919-39.

There is a danger that congested central areas will be redeveloped at too high a density, in marked contrast to outlying areas. Acceptance of the old pattern as the basis for the new will yield no real improvement. The overall density of a whole neighbourhood must be thought of as well as local densities of groups of houses, e.g. higher densities should be allowed near open spaces rather than in the centre of towns. In short, redevelopment schemes must be spread

over areas big enough to allow the best use to be made of natural advantages and social groupings. If the scheme is too big to reconstruct the whole at one time it may be planned for execution by stages.

In considering housing needs of large towns or groups of towns, it will have to be decided whether further suburban or 'fringe' development is desirable. Up to a point good communications and cheap travel facilities relieve congestion; beyond that point—and it has already been passed by larger cities—improved transport gives no compensation for loss of touch with the countryside. The imposition, by a green belt or wedges of undeveloped land, of a limit to expansion must be considered in these cases.

Where a serious problem of overspill exists (i.e. where a numerous population cannot be adequately housed within the existing town) and development on the outskirts is undesirable, there will be a strong case for the establishment of satellite towns.

Ministries of Health and Town and Country Planning. Design of Dwellings Sub-Committee of the Central Housing Advisory Committee. Report (the Dudley report). Design of dwellings. 1944 Part 2 paras. 4-9 (S)

Design and layout of housing

The evidence collected shows a great desire that housing and all buildings should be given better architectural form than in the past, particularly in the grouping of buildings in relation to each other. The monotony of appearance which comes from similar houses being strung along roads 'in endless ranks', and the desirability of introducing houses grouped in streets, terraces and squares have been stressed.

In this matter there is a difference of opinion between those interested in the collective external appearance of houses, and those most interested—as occupants or prospective occupants—in the individual house. The choice of the latter would be, 1st., for a detached house, 2nd., for a semi-detached, and 3rd., by a long way, for a terrace house. But it must be borne in mind that people tend to judge only from their own experience and few terraces which embody the best principles of modern design have been built in this country.

There is little to choose between a semi-detached and a terraced house in matters of privacy and sound-transmission. The one advantage of a semi-detached house is the ease of approach to the back. Against this has to be weighed the extreme difficulty of achieving a pleasant grouping and landscape treatment for a large number

of semi-detached houses. A whole town or suburb made up of such units is almost bound to be restless and wearisome. On the other hand, the terrace arrangement offers great possibilities of order, continuity and diversification. Neither blocks of terrace houses nor streets composed of them should be too long.

Garages will have to be provided for future state-aided houses in much greater number. They may be incorporated in the house blocks or grouped in blocks of 'lock-ups' at convenient points in the neighbourhood. The latter is the more flexible arrangement where it is difficult to make an accurate estimate of how many will be needed. It would be wise to provide for a considerable number.

One of the most important requirements of good street architecture is a harmony, or carefully regulated contrast, of forms and materials in the associated buildings. A unified fenestration and other matters are important, but harmony is basic.

It is hoped that large-scale grouping will be more generally practised in the future. This does not mean uniformity; the search for variety in town and neighbourhood is necessary. It has failed in recent years because it was misdirected. Variety between building and building can in the end only produce monotony. Between street and street, and between neighbourhoods, variety is readily possible and is the true kind for urban design.

Ministries of Health and Town and Country Planning. Design of Dwellings Sub-Committee of the Central Housing Advisory Committee. Report (the Dudley report). Design of dwellings. 1944 Part 2 paras. 50-58 (S)

Housing layout

Imaginative site-planning, based on thorough study of conditions and aims, is the basis of all good housing development. Full use should be made of the landscape setting—such features as good trees, a stream, ponds or a wood, and irregularities of ground. A complete survey of the site, including a contour plan where needed, should precede preparation of a development plan.

Except on hilly sites or where many natural features should be preserved, streets should not curl like country byways. Such a layout may produce awkward building plots, dangerous road junctions and lacks a sense of order. At the other extreme, rigid geometrical patterns are equally undesirable, being often out of scale with the houses and adding to the cost of roads and services.

Buildings and their approaches—which is all that residential roads are—must be thought of together. Domestic road pattern should

usually be of a free and varied rectangular kind. Rectangular does not mean 'grid-iron'; it lends itself to a great deal of diversity. Features like the square, the quadrangle, the cul-de-sac, the loop-way and branch; or the use of a curved road, well-considered as regards building possibilities and making a satisfactory right-angle junction with other roads, will make interesting variations.

The street pattern should also economise land, paved surfaces and services. This requires that no lengths of street should be 'dead' or unnecessary as regards giving access to buildings. For instance, a cul-de-sac can take the place of an unnecessary through-street.

The possibilities of the cul-de-sac deserve study. It is known in England as an occasional element in a plan. At Radburn, U.S.A., a whole system of planning has developed round it. Here there is almost complete separation of vehicles and pedestrians: through-passage of vehicles is limited to a few 'distributive' streets only, the rest being culs-de-sac intended for stopping vehicles only. Pedestrian movement and access to individual houses are provided for by a separate system of footpaths running through open spaces independently of the street system. Children can thus go to school without having to cross any street at all. The cul-de-sac method has drawbacks, particularly if the culs-de-sac are narrow, but most can be overcome by good footpath communications.

In some Continental housing schemes both the through-street and the cul-de-sac are used with houses on one side only. This arrangement is useful for hilly sites and allows freer and more open development but it detracts from the privacy of gardens, and road and service costs are higher. A variation of this method, sometimes called the 'Branch', is where the houses are approached by footpath only, the length of a block being limited to that beyond which carrying of goods or refuse cans becomes laborious.

Loop-ways, and sometimes squares, have the advantage that, while they provide for through-passage of vehicles, traffic other than that serving flanking houses has no reason to go there since no other streets run off them. They are therefore quieter than ordinary through-streets but not such 'backwaters' as culs-de-sac.

A quadrangle, set back from a through-street and built on three sides only, is another variant of the cul-de-sac. It provides quiet, and also outside interest for those who dislike the sense of being in a close. The square has not been much used in recent domestic planning. When comprised of small houses it should be intimate and not monumental. The effect within such a square will usually be better if entering roads do not come opposite one another. In that way they will be roads *into* the square and not roads through it.

A variation which might be more practised, is that houses may

have much smaller private gardens which abut on a communal garden. The communal garden idea was used quite extensively and very pleasantly in the Ladbroke Grove area of London more than seventy years ago.

In the layout of flats, other considerations apply. Here the space between the blocks will be shared communally. One of the commonest layout forms for flats is the courtyard. Such planning, especially when the courtyards are small, causes over-shadowing and accentuates noise which is the greatest source of complaint from all who live in flats. Flats designed with an open layout are quieter than those which overlook a courtyard and alternatives deserve attention. These include open-sided courtyards, T, H and Y shapes and single blocks in parallel. Much evidence advocates separate blocks in parallel running north and south.

Ministries of Health and Town and Country Planning. Design of Dwellings Sub-Committee of the Central Housing Advisory Committee. Report (the Dudley report). Design of dwellings. 1944 Part 2 paras. 34-45 (S)

The size and layout of residential neighbourhoods

The conception of the urban 'neighbourhood' in the sense in which the term is used here, is of recent date.

The abstract idea of a town has generally been of a single, though complex, community. In smaller towns this conception still exists, but during the past 100 years the larger towns have absorbed smaller communities and have coalesced with other towns. This has caused a partial breakdown of that feeling of neighbourhood or community which is one of the fundamentals of social well-being. In addition, despite technical progress, the life of many town dwellers is filled with unnecessary difficulties created through an unorganised physical environment—traffic dangers, inconveniently placed shops and workplaces, noise and polluted air. Indeed in larger towns traffic is canalised through the centres of 'neighbourhoods'. Strong feeling for these neighbourhoods still exists, but the more disorderly the town expansion is, the more they are mutilated; and it is a social as well as physical mutilation because community and recreational buildings do not take their place as parts of a rational pattern.

About half the population of England and Wales live in towns of over 50,000 inhabitants, and in these a sense of neighbourhood has been lost to many of their inhabitants. And not only in older parts of

the towns. On large new housing estates built in the inter-war period all forms of community provision, even pubs and shops, are often inadequate to induce any neighbourhood feeling.

The idea of the 'neighbourhood unit' is to provide a means of organizing the physical form of a town in a way which will encourage the full development of community life. In the past physical barriers sometimes preserved a sense of neighbourhood, in future they could be used to define them. The aim is both to break down the large town into units which will allow a full growth of neighbourhood feeling, and to ensure that redevelopment will enable each unit, while still remaining essentially a single part of a greater whole, to be a comprehensible entity in itself. The obvious way to do this is to use railway lines and main highways as boundaries of the units.

It has been suggested that the desirable social unit is a 'neighbourhood' containing not more than 10,000 people and in which every house is within 10 minutes walk of the neighbourhood centre. The Board of Education has concluded that the best size would be either 5,000, to contain one school for children aged 5-7 and one for children aged 8-11, or 10,000 containing two of each of such schools. A neighbourhood unit of 10,000 would also require 1 Secondary School for children of 11-15. Probably, however, it will be necessary to have different sizes of unit within a town.

A decisive factor in planning a neighbourhood unit is density. Arriving at reasonable density figures is very difficult, particularly in redevelopment of built-up areas. Certain important amenities, like open space, are inadequate in central areas and can be introduced only if a long-term policy is pursued, for the *scale* of redevelopment is the governing factor. An ultimate objective should be set for a 50-year period and obtained by stages.

It can be assumed that in the near future density of housing will vary according to position in the town: the nearer the centre the greater the density. But it should never be so high as to exclude houses for families with young children, open spaces and a good range of community buildings. The minimum standards advocated in the table below are for self-contained residential neighbourhoods, and do *not* include main recreational and amusement centres and secondary schools and playing fields.

The 'housing area' acreages given in the table (page 97) are those required to house 10,000 people at the net residential densities shown, and would be translated into terms of accommodation in houses and flats. At the highest density (120 persons per acre) 70-75 per cent. of the population could be accommodated in houses at a density of 20 houses per acre, or a little over. At other densities, as high a proportion of houses as desired could be included.

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A RESIDENTIAL NEIGHBOURHOOD OF 10,000 PERSONS

	<i>Open Develop- ment</i>	<i>Outer Ring</i>	<i>Inner Ring</i>	<i>Central</i>	<i>Central</i>
<i>Housing</i>	<i>Acres 333</i>	<i>Acres 200</i>	<i>Acres 133</i>	<i>Acres 100</i>	<i>Acres 83</i>
Primary Schools (3-11 years of age: school and playing field area) - - -	17	17	17	17	17
Open space - - -	70	70	60	50	40
Shops, offices, etc. - -	9	8	7	6	5
Community centre, churches, etc. - -	7	5	4	3	3
Public buildings - -	4	3	2	2	2
Service industry and workshops - -	7	6	5	4	4
Main roads—including half boundary roads, up to a maximum of 20 feet, and parking -	35	28	20	17	14
Totals - - -	482	337	248	199	168

Average net residential density (persons per acre)* - - -	30	50	75	100	120
Gross neighbourhood density (persons per acre)† - - -	21	30	40	50	60

* *Net Residential Density* is the average number of persons per acre of housing area; which comprises the curtilages of the dwellings, access or internal roads, and half the boundary roads up to a maximum of 20 feet, where these are contiguous to residential property.

† *Gross Density* is the average number of persons per acre of the whole neighbourhood, the acreage of which is shown by the totals.

The desirable standard for central re-development is shown in the fourth column—100 persons per acre. Only in a few cases in large concentrated urban areas should it be necessary to rebuild at 120 persons per acre. Additional open space to make up a total equivalent to 7 acres per 1000 of population should always be part of the development plan of the town as a whole. Intermediate densities of 40 or 60 persons per acre could be inserted in the above table where local circumstances require variations.

The 10,000 population figure is a target only. Local conditions might dictate a lower one, though not often one lower than 5,000.

The careful disposition of parks, community buildings and shopping centres would go a long way to solve the problem of 'social balance' and ensure that the neighbourhood was not inhabited by families all of one type or income level, but the best solution lies in grouping the types of dwellings so that they satisfy the desires of the various income groups in matters of convenience and use while still remaining part of the neighbourhood. Accommodation should provide for varying rents and sizes of family and for old and single people. Flats are best placed near open space and the centre where communal facilities and shops are most numerous, and so is accommodation for both old and single people.

Open space should be closely related to the dwellings and a system which allows walks along continuous pedestrian ways is very desirable, particularly for children going to and from school. Children's playgrounds could be linked into this system.

A good part of the open space should be on the perimeter of the neighbourhood to act as a buffer between housing and the traffic arteries which pass between neighbourhoods.

Where there is only one school, it should be in the centre of the neighbourhood; where two, one should be centrally placed in each half. Access to schools for children without their crossing main roads is very necessary. Nursery schools, of which two, three or four might be needed, should be located within very easy reach of houses served by them. Secondary schools might well be placed on the perimeter, as it would be convenient if two neighbourhoods could share between them one boys' and one girls' school.

Every neighbourhood should have a definite 'centre' which should have its own individual character. Among neighbourhood buildings which should be at the 'centre' are places of worship, the branch-library, cinema, public house, branch administrative buildings, clinics, smaller club buildings and a group of shops. Ideally, a neighbourhood of 10,000 people should contain a Community Centre and a Youth Centre, either as separate buildings or sharing accommodation with the school.

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The local shopping centre should be an important element in the neighbourhood plan. It is at present impossible to establish authoritative figures for the number of shops needed by each neighbourhood. It appears, however, that allowance should be made for shops at a rate, in terms of individual shops, of at least one shop per 100–150 inhabitants, or 70–100 shops per 10,000 people. This allowance is for *local* shops and excludes those available in the central areas of a town. As multiple and co-operative stores are liable to upset a simple formula of this kind, it may be better to plan in terms of shopping areas. Assuming the fairly low average of 270 sq. yds. per shop (including service roads, delivery space, etc.), somewhere between 19,000 and 27,000 sq. yds. of shopping space would be needed for 10,000 people.

Every house should be within a quarter mile walking distance of shops, and thus one or more subsidiary groups may be needed besides the central neighbourhood shopping group. A subsidiary group may contain from one to twelve shops, and it should rarely be necessary to have more than two such groups, occupying up to 6,000 sq. yds. of ground. The central group would then occupy from 15,000–21,000 sq. yds.

Arterial roads are unsuitable situations for shopping centres, and passing traffic should not in any case be obstructed by standing vehicles.

Ministries of Health and Town and Country Planning. Design of Dwellings Sub-Committee of the Central Housing Advisory Committee. Report (the Dudley report). Design of dwellings. 1944 Part 2 paras. 13–27 (S)

Defects of flatted houses

The 'flatted house' is a building of two storeys which contains two, four or more self-contained flats, each of which has independent access from ground level. Normally a flatted house contains four self-contained flats.

It is accepted chiefly as a compromise between cottage-type houses and the block of flats of 'tenement' type. It was uncommon before 1914, but since 1919, 137,380 houses or 57 per cent. of all houses built by local authorities in Scotland have been of the flatted type. This kind of development has been consistently cheaper than the cottage type, but we deplore the disproportionately large concentrations of flatted houses which appear in almost all local authority housing schemes. The blocks, usually containing four flats each, have

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in many schemes a depressing uniformity of design which has been subjected to much unfavourable comment.

Attention has been drawn to the difficulty of obtaining proper sound-proofing, the absence of the degree of privacy which is enjoyed in the cottage type of house, and social difficulties which may arise from the use of a common access to the block from the road or street. Where built after the war, the flatted houses should be properly sound-proofed and should be erected in longer blocks than those previously customary.

Department of Health for Scotland. Housing Design and Furniture Sub-Committees of the Scottish Housing Advisory Committee. Report. Planning our new homes. 1944 pp. 12-13 (S)

Condition of houses in N. Ireland

The committee felt that in order to obtain a true picture of the housing position in Northern Ireland a survey should be made. This was done by the Ministry of Home Affairs in the summer of 1943.

The results of the survey are indicated by the following totals, for Northern Ireland as a whole, taken from Tables Nos. I, II and IV, (see below).

STRUCTURAL CONDITION OF HOUSES, 1943

Total number houses	No repairs required		Minor repairs (up to £20) required		Extensive repairs (£20-£100) required		Major repairs (£100-£200) required		Totally unfit or repairs over £200 required	
	No.	% of all houses	No.	% of all houses	No.	% of all houses	No.	% of all houses	No.	% of all houses
323,052	51,127	15.8	100,487	31.1	105,875	32.8	23,553	7.3	42,010	13.0

Note: The structural survey in Belfast (104,470 houses in all) was carried out in September 1943, by which time practically all houses damaged by enemy action had been repaired.

OVERCROWDED HOUSES, 1943

Inhabited fit or repairable houses		Inhabited totally unfit houses	Vacant houses or houses used for purposes other than dwellings		Total number of houses	Inhabited fit and repairable overcrowded houses plus inhabited totally unfit houses as percentage of total houses
Not overcrowded	Overcrowded		Fit or repairable	Totally unfit		
200,461	73,907	37,364	6,674	4,646	323,052	34.4

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ESTIMATED NUMBER OF HOUSES REQUIRED, 1943

Married couples in lodgings (1)	Totally unfit houses (a) (2)	One house allowed for each couple in Col. (1) and in each house in Col. (2) (3)	Overcrowded fit and repairable houses			Gross number of houses needed, i.e. totals of Cols. (3) and (6) (7)
			No. of over-crowded houses (b) (4)	Average excess units (5)	One house per 4 excess units (6)	
24,448	37,364	61,812	69,848	—	35,689	97,501

(a) Unfit houses which are empty or used for purposes other than dwelling houses have been excluded from this column.

(b) Houses in which overcrowding is caused solely by lodging married couples have been excluded from this column.

The figure of 100,000 new houses needed to meet the immediate needs of Northern Ireland may be compared with the target figures of 4 million for England and Wales, and 500,000 for Scotland. It is important to note that the English and Welsh figure covers estimated needs for the next ten years, while the Scottish and Northern Ireland figures indicate only the number of houses immediately necessary to provide a reasonable housing standard and take no account of future needs arising from population increase or further obsolescence.

The requirements of Northern Ireland during the next decade are relatively much greater than those of England and Wales by reason of the negligible amount of slum clearance and other building carried out in Northern Ireland during the inter-war period, with the result that wastage is a very much more serious problem. Probably 200,000 houses will be needed in all during the next decade in Northern Ireland.

Government of N. Ireland. Interim Report of the Planning Advisory Board. Housing in Northern Ireland. Cmd. 224 1944 (S)

Housing needs in Scotland

The demand for housing in Scotland at the present time is:

- | | | | | |
|--|---|---|---|---------|
| (1) Houses unfit for habitation in 1938 | - | - | - | 66,538 |
| (2) Houses estimated to be needed to replace houses which will have become unfit between December 1938 and December 1943 | - | - | - | 55,000 |
| (3) Houses estimated to be needed in 1938 to end overcrowding (after taking appropriate account of the use of houses to be vacated by over-crowded families) | - | - | - | 200,000 |
| (4) Houses needed to meet general needs and to replace those destroyed by enemy action | - | - | - | 64,000 |

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(5) Houses needed as a result of marriages between December 1938 and December 1943	- - - 133,750
	<hr/> 519,288

From this total there must be deducted the estimated 50,000 houses built between December 1938 and December 1943.

In brief, about 470,000 houses are needed, without taking account of those without internal water supply and sanitary conveniences, but which are not regarded as unfit. About 405,000 houses in Scotland have no independent water closets or no sanitary conveniences of any kind. It is safe to assume that the minimum accumulated arrears of new houses needed in Scotland is 500,000.

Department of Health for Scotland. Housing Design and Furniture Sub-Committee of the Scottish Housing Advisory Committee. Report. Planning our new homes. 1944 pp. 10-11 (S)

Number of houses pre-1914 and built 1919-39

'According to estimates given in the report of the Inter-Departmental Committee of 1937 on the Rent Restriction Acts (Cmd. 5621, Paras. 33-35) there were in 1937 some 8,116,000 pre-war [pre-1914] houses in Great Britain. Comparatively few houses were erected during the war. The number of houses provided from 1st January, 1919, to 31st March, 1939, is shown below :

	<i>England and Wales</i>	<i>Scotland</i>
By local authorities -	1,112,505	212,866
By private enterprise with State assistance - -	430,327	43,067
By private enterprise with- out State assistance -	2,449,216	61,444
	3,992,048	317,377
	<hr/> 4,309,425	

'From these figures it will be seen that rather more than one-third of the houses of Great Britain belong to the last 20 years.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 134 (E)

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Number of houses built by local authorities, 1919-1939

'Scotland. Numbers of houses of different sizes built by local authorities between 1st January, 1919, and 31st December, 1939.'

Number of rooms per house	1	2	3	4	5	6	Total
Number of houses	724	26,546	140,350	51,691	7,988	48	227,347
Percentage of total	·32	11·68	61·73	22·74	3·51	·02	100

Local Authority	Population (1939)	Number of dwellings provided	Dwellings of 4 rooms and over		Dwellings of 5 rooms and over		Parlour type (2 living-rooms)	
			Number	%	Number	%	Number	%
Aberdeen -	179,628	6,434	1,746	27·1	140	2·2	Nil	—
Dundee -	178,013	8,374	1,237	14·7	161	1·9	Nil	—
Edinburgh -	471,897	14,570	1,935	13·2	157	1·07	Nil	—
Glasgow -	1,128,473	50,289	14,006	27·8	1,537	3·05	401	·79

'England and Wales. Number of houses of different sizes built by local authorities from 1919 to 1935.'

Number of rooms per house	1	2	3	4	5	6	Total
Number of houses	7,345	30,310	134,658	365,729	260,310	74,681	873,033
Percentage of total	·84	3·47	15·43	41·89	29·82	8·55	100

Authority	Population (1939)	Number of dwellings provided	Dwellings of 4 rooms and over		Dwellings of 5 rooms and over		Parlour type (2 living-rooms)	
			Number	%	Number	%	Number	%
Birmingham -	1,052,900	51,681	48,555	93·95	12,120	23·45	11,997	23·21
Manchester -	727,600	30,991	25,855	83·42	6,659	21·48	6,554	21·14
Leeds -	497,000	22,044	14,499	65·77	4,323	19·61	2,332	10·57
Liverpool -	822,400	37,494	33,238	88·64	12,938	34·50	12,379	33·01

Department of Health for Scotland. Housing Design and Furniture Sub-Committees of the Scottish Housing Advisory Committee. Report. Planning our new homes. 1944 p. 18 (E)

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Number built, 1919-1940

Number of houses completed in England and Wales between 1st January, 1919, and 31st March, 1940. (By Local Authority).

Table continued on page 105

Local Authority

	Subsidised						Unsubsidised (a)	Total
	1919 Act	1923 Act	1924 Act	1930 Act	1935 and 1936 Acts	1938 Act		
1/1/19 to 31/3/20 ½ year ended	576	—	—	—	—	—	—	576
30/9/20 Year ended	2,926	—	—	—	—	—	—	2,926
30/9/21	47,651	—	—	—	—	—	—	47,651
1922	85,976	—	—	—	—	—	—	85,976
1923	24,385	856	—	—	—	—	—	25,241
1924	5,515	9,029	—	—	—	—	—	14,544
1925	1,497	18,314	12,279	—	—	—	—	32,090
1926	975	14,769	45,658	—	—	—	—	61,402
1927	527	17,083	95,664	—	—	—	—	113,274
1928	30	6,200	52,990	—	—	—	—	59,220
1929	18	9,058	51,291	—	—	—	—	60,367
1930	14	—	49,038	—	—	—	2,965	52,017
1931	—	—	59,777	392	—	—	3,119	63,288
1932	—	—	61,266	5,168	—	—	2,056	68,490
1933	—	—	41,741	6,236	—	—	1,236	49,213
1934	—	—	34,814	14,865	—	—	3,663	53,342
1935	—	—	—	32,685	—	—	10,660	43,345
1936	—	—	—	48,932	742	—	15,200	64,874
1937	—	—	—	52,890	3,566	—	14,883	71,339
1938	—	—	—	64,285	10,645	—	13,400	88,330
Period 1/10/38 to 31/3/40	—	—	—	69,477	17,308	2,515	16,134	105,434
Totals	170,090	75,309	504,518	294,930	32,261	2,515	83,316	1,162,939

(a) Until the year 1929-30 separate figures were not obtained of unsubsidised houses built by local authorities and private enterprise respectively. The figures given in the above table for unsubsidised houses built by private enterprise accordingly include up to 1929 some houses built by local authorities without subsidy. The number of such houses was small.

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Number built, 1919-1940

Number of houses completed in England and Wales between 1st January, 1919, and 31st March, 1940. (By Private enterprise).

Table continued from page 104

Private Enterprise including Housing Associations and Public Utility Societies

Subsidised							Unsubsidised (a)	Total	Grand total of local authorities and private enterprise
1919 Act.	1919 (A.P.) Act.	1923 Act.	1924 Act	1930 Act	1935 and 1936 Acts	1938 Act			
139	—	—	—	—	—	—	30,000 (estd.)	73,108 (estd.)	210,237 (estd.)
441	2,045	—	—	—	—	—			
1,768	18,526	—	—	—	—	—			
1,754	18,435	—	—	—	—	—	52,749	53,497	78,738
433	180	135	—	—	—	—	73,032	94,947	109,491
10	—	21,905	—	—	—	—	66,735	126,936	159,026
—	—	60,095	106	—	—	—	65,689	136,182	197,584
—	—	69,662	831	—	—	—	60,313	159,955	273,229
—	—	97,990	1,652	—	—	—	64,624	107,195	166,415
—	—	41,769	802	—	—	—	71,083	143,076	203,443
—	—	71,182	811	—	—	—	107,410	109,682	161,699
—	—	—	2,272	—	—	—	129,790	131,656	194,944
—	—	—	1,860	6	—	—	130,830	133,486	201,976
—	—	—	2,656	—	—	—	166,644	169,100	218,313
—	—	—	2,390	66	—	—	257,746	260,327	313,669
—	—	—	2,400	181	—	—	275,069	275,299	318,644
—	—	—	—	230	—	—	274,348	274,654	339,528
—	—	—	—	306	—	—	264,231	265,795	337,134
—	—	—	—	1,462	102	—	248,923	252,548	340,878
—	—	—	—	3,502	123	—	—	—	—
—	—	—	—	4,000	260	843	257,219	262,322	367,756
4,545	39,186	362,738	15,780	9,753	485	843	2,596,435	3,029,765	4,192,704

Ministry of Health. Private Enterprise Sub-Committee of the Central Housing Advisory Committee. Report. Private enterprise housing. 1944 Appendix iv (E)

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Number of Houses in Gt. Britain

Years	England and Wales			Scotland		
	Occupied	Unoccupied	Total	Occupied	Unoccupied	Total
1851	3,278,039	153,494	3,431,533	—	—	—
1861	3,739,505	184,694	3,924,199	—	—	—
1871	4,259,117	261,345	4,520,462	—	—	—
1881	4,831,519	386,676	5,218,195	739,005	59,697	798,702
1891	5,451,497	372,184	5,823,681	817,568	51,460	869,028
1901	6,260,852	448,932	6,709,784	926,914	59,420	986,334
1911	7,141,781	408,652	7,550,433	1,013,369	89,060	1,102,429
1921	7,759,821	218,833	7,978,654	1,057,609	51,835	1,109,444
1931	9,123,279	276,256	9,399,535	1,149,267	47,976	1,197,243

Note.—For definition of the term “house”, which has varied slightly from time to time, reference should be made to the Census Reports. Prior to 1921, the figures for England and Wales relate to all habitations, whereas for 1921 and 1931 the figures are in respect of private family habitations only.

Statistical Abstract for the United Kingdom for each of the fifteen years 1924–1938. Cmd. 6232 1940 Table 32 (E)

The scope of private enterprise in housing

Given cheap money, plentiful labour and materials, building costs in close correspondence with the cost of living and stability of values, a large proportion of this country's housing needs can be met without subsidy.

Private enterprise must produce more houses to let if its position in the housing field is to be maintained after the war. In this building societies must assist.

The chief obstacle, apart from shortages of materials, to resumption of building by private enterprise on a pre-war scale is building costs out of scale with the cost of living.

Private enterprise should participate in the short-term building programme in order to prepare building organisations for the long-term programme. To do this a subsidy will be needed, and when private enterprise is catering for the same needs as local authorities it should get the same subsidy, but some measure of control must be established for selling prices or rents and standards of size and construction. Subsidies should be simple—either an annual payment over a number of years or a lump sum on completion, at the option of the applicant.

The amount of the subsidy might vary according to district, and size and type of house, at the discretion of the local authority, subject to a maximum payment from the Exchequer. Local authorities

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should be free to supplement the Exchequer subsidy from the rates. The amount of the maximum Exchequer subsidy should be reviewed from time to time in relation to building costs and withdrawn as soon as possible.

Local authorities should make free use of their powers to assist housing associations financially.

Building authorities should be allowed to accept collateral security from persons to whom they make advances in respect of which guarantees are to be given under Section 110 of the Housing Act 1936 by the Minister of Health and the local authority.

A voluntary scheme, on the lines of the National House Builders Registration Council, should be developed, with the support of the Government, to secure good standards of building.

Local authorities owning large areas of land should consider setting aside a portion to be developed by private enterprise.

The procedure for obtaining decisions on housing proposals by a private builder should be simplified.

A statutory right of appeal to the Ministry of Health against a local authority's requirements as regards private street works should be considered.

A body for reviewing the prices of building materials should be kept in permanent commission with power to call for the production of books and its reports should always be published.

Ministry of Health. Private Enterprise Sub-Committee of the Central Housing Advisory Committee. Report. Private enterprise housing. 1944 p. 37 (S)

Government housing programme, March 1945

In the years 1934-39 the total output of houses exceeded 300,000 a year. In 1939 the number of houses was roughly equal to the number of separate families, and slum clearance and abatement of over-crowding were being tackled. The proportion of people still living in unfit or overcrowded houses was about 6 per cent., and more than 30 per cent. were living in post-1919 houses.

The number of houses built between 1939 and 1945 has not exceeded 200,000, and 200,000 houses have been entirely destroyed and 250,000 made uninhabitable by enemy action. A much larger number have been damaged but are still occupied.

The Government's first aim is to provide a separate dwelling for every family which wants one. For this about 750,000 dwellings are needed. The second aim is to complete rapidly the slum clearance and over-crowding programmes which were under way before the war. To remove houses already condemned as unfit and to abate

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over-crowding condemned since 1935, a further 500,000 houses are needed. The long-term aim of the Government is progressively to improve housing standards by a continuous programme of new building, which will take account of any increase in the number of separate families and needs which arise from redistribution of the population and replacement of obsolescent houses.

The Government proposes to treat the first two years after the end of the war in Europe as an emergency period, during which they will try to produce the largest practicable number of separate dwellings.

Before the war there were about 1,000,000 men in the building trades; the number employed on building work at home is now 337,000. It is hoped to increase this to 800,000 by the end of the first year after the end of the European war, and thereafter increase to beyond the pre-war total. Although housing will have first call on building labour there will be many other claims on it. Available resources will be used to best advantage by new methods of construction, standardisation and use of labour and capacity normally outside the building industry.

War damage repair will be dealt with first, and the programme of permanent houses described below includes provision for the replacement of totally destroyed houses which attract a cost of works payment.

It is intended that 300,000 permanent houses should be built or building at the end of the second year after the end of the German war: of this total about 220,000 would be finished and 80,000 under erection.

A proportion of the permanent houses will be subdivided temporarily to form two separate dwellings of the 'Duplex' flat kind.

By the Housing (Temporary Accommodation) Act, 1944, the Government are authorised to spend up to £150,000,000 on temporary houses. The U.S. Government are providing 30,000 temporary houses on lend-lease terms of which a large proportion will be delivered in 1945. The Government intend to manufacture temporary houses to the full extent of available labour and materials and in any event 145,000 of them will be made. The Government will build the houses on sites bought and prepared by local authorities, who will let and manage the houses.

The Government will control the number of contracts let by local authorities, building and repair work done by private persons and prices of materials. Subsidies will be provided for both local authority and private enterprise housing—providing that the houses provided by private enterprise are substantially of the same size as those of local authorities.

Over 1,500,000 of the houses damaged before the flying bomb attacks required extensive repair, and by mid-June 1944 repairs had

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been completed to all but 200,000 and many of the remainder were not worth repairing. Attacks from flying-bombs created a special problem in Greater London and efforts have been concentrated on repairs up to a minimum tolerable standard. Repairs to 719,000 houses will, it is hoped, have been completed by the end of March.

Allocation of temporary houses to local authorities total 110,977 in England and Wales and 34,375 in Scotland.

Land held by local authorities for permanent houses in England and Wales is 25,000 acres—enough for 250,000 houses. 32,000 acres more are being bought and a further 36,000 acres have been agreed for use if needed. In Scotland 6,000 acres have been bought and 4,000 more are being bought. Sites for 55,000 temporary houses have been approved in England and Wales and 28,000 acquired: similar figures for Scotland are 15,000 and 8,000.

Accepted tenders for construction of roads and sewers for permanent houses cover enough sites for 45,000 houses in England and Wales and 10,700 in Scotland.

Local authorities have so far handed over fully developed sites for 5,000 temporary houses in England and Wales and 1,550 in Scotland.

The Ministry of Works is laying the concrete slabs to receive the temporary houses when they arrive from the factories. Vigorous action will be needed to keep preparatory work on sites sufficiently in advance of factory production.

Materials and fitments for housing will be standardised within a limited range and local authorities will be expected to use them.

Local housing authorities are responsible in this programme for determining, with the approval of the Government, the number and type of houses they will build in their areas. They prepare sites, build permanent houses or arrange for their erection, select tenants, fix rents and manage the houses. In Scotland, besides the local housing authorities, the Scottish Special Housing Association, a non-profit-making body financed by the Treasury, operates where housing needs are greatest and pays special attention to non-traditional constructional methods.

Central responsibility rests in England and Wales with the Ministry of Health and the Ministry of Works, and in Scotland with the Department of Health for Scotland and the Ministry of Works.

In each case the Health Department is responsible for housing policy as part of its wider responsibility for public health. It determines need and formulates the programme, and lays down standards of accommodation for new houses and of fitness and density of occupation for existing houses. It supervises the housing functions of local authorities, sanctions their building proposals and formulates subsidy policy.

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The Ministry of Works is responsible for questions affecting the building industry (registration of builders, training of apprentices, allocation of labour and licensing of building work). It is responsible for seeing that building materials, components and fittings will be forthcoming in proper time and at reasonable price and advises on building technique. It is responsible for production, distribution and erection of temporary houses.

The Ministry of Town and Country Planning assists in the choice of housing sites, layout of estates and all questions affecting the use of land and planned distribution of communities. In Scotland, this is a function of the Department of Health for Scotland.

Ministry of Reconstruction. Housing. Cmd. 6609 1945 (S)

Production up to January 1946

The following tables show the position by Regions as regards the construction of (A) permanent houses and flats, and (B) temporary houses, by Housing Authorities in England and Wales at 31st January, 1946.

In addition to those shown 1,116 new houses had been completed by private enterprise under licence up to the end of January, and a further 5,000-6,000 are believed to have been under construction at that date. These two figures are exclusive of the rebuilding of war-destroyed houses.

A. Permanent Houses and Flats

<i>Region</i>	<i>Site development begun</i>	<i>Construction begun</i>	<i>Completed</i>
Northern - - -	11,991	1,728	2
North Eastern - -	17,557	1,291	8
North Midlands -	12,203	2,101	12
Eastern - - -	7,283	1,498	2
London - - -	24,356	2,024	12
Southern - - -	6,886	747	4
South Western - -	8,233	959	24
Wales - - -	6,127	397	1
Midlands - - -	15,758	2,688	86
North Western - -	17,152	3,022	199
South Eastern - -	5,818	662	2
Totals - - -	133,364	17,117	352

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B. Temporary Houses

<i>Region</i>	<i>Site development begun</i>	<i>Houses completed</i>
Northern - - -	5,044	533
North Eastern - -	7,918	1,547
North Midlands - -	5,403	364
Eastern - - -	5,977	620
London - - -	25,009	5,502
Southern - - -	5,364	465
South Western - -	5,895	659
Wales - - -	4,994	218
Midlands - - -	8,702	859
North Western - -	9,730	686
South Eastern - -	4,482	572
Totals - - -	88,608	12,025

Ministry of Health. Housing return for England and Wales, 31st January, 1946. Cmd. 6744 1946 Appendix A Tables 1-3 (S)

Housing progress after the 1914-1918 war

A year ago, the President of the Local Government Board sent a circular letter to local authorities in which the State agreed to pay three-quarters of the loss on housing schemes to meet the shortage, while the local authorities were to pay the rest. Later the President was given discretion to limit local authorities' contribution to the product of 1d. rate.

Complaints eventually secured general limitation to the product of 1d. rate and a better method of valuation.

During the remaining nine months of the year the housing question has merely oscillated and not progressed. The local authorities had to estimate housing need without facilities for any survey of governing conditions—such as industrial or agricultural programmes. The basic question of land purchase is still where it was a year ago and local authorities have tried to buy land secretly in order to avoid pre-1914 exploitation.

The Local Government Board has been chiefly occupied in receiving deputations and in refusing to act on their recommendations.

Housing Inspectors and Commissioners for provincial areas were appointed to advise and help local authorities but could answer no important question whatever.

The one bright spot has been publication of the Tudor Walters Report which contained many good type plans. Nothing effective has been done to organize the supply of building materials.

Since the New Year a Bill has been passed which enables County Councils to step in to tackle the housing question where local authorities fail—a measure of doubtful use because the County Councils have much smaller experience of the problem.

Finally, a new circular letter in February improved the situation. Its provisions included: limitation to 1d. rate for local authorities' contribution; method of valuation; submission of schemes by stages; the supply of a useful Housing Manual; creation of District Housing Commissioners with technical staffs.

The country is clamouring for the houses, local authorities, architects and demobilised labour are ready to do the work. It is only necessary for the Government to do its share.

Town Planning Review Vol. viii No. 1 1919, pp. 1-5 (S)

Houses built in rural districts, and on agricultural land

'In the twenty years between 1919 and 1939 some 862,500 houses were built in "rural districts", (i.e. as defined for local government purposes). Of these, some 162,500 were built by local authorities, and the remaining 700,000 by private enterprise. What number of the total was built for and occupied by agricultural workers it is impossible to say, for unfortunately, no statistics of this kind are available: but the number must be extremely low and is unlikely to exceed a very few thousand. These figures, however, do not accurately reflect the building activity in country areas, because "urban districts" (in the local government sense) contain extensive areas of agricultural land and, as already pointed out, "rural districts" contain a considerable number of small towns. Since rebuilding, on actual town areas, has been comparatively slight, by far the greater part of the houses built since the last war must necessarily have been on open land. Many if not most, of the habitations built in already developed town areas have been in the form of flats. Actual statistics of the number of flats that have been built are not available, but the number is very unlikely to have exceeded 200,000. If we deduct this estimated total from the total of 3,998,000 habitations of all kinds built in England and Wales between 1919 and 1939, the resultant figure of some

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3,800,000 is probably roughly accurate, for the number of houses which have been built on rural, that is to say, agricultural land.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 76 (E)

Location in rural areas

'We have suggested . . . that the farm worker and his family have far more chance of a happy social life and better opportunities of developing as self-reliant and responsible members of society if they live in a village. This is true of all dwellers in the countryside. It applies to the week-ending townsman and to those people who now go to live in ribbon developments as well as to genuine countrymen. Though not all country dwellers can live in groups we consider that planning schemes should be so designed as to direct all new settlers into country towns and villages except where they can advance some decisive reason why they should be housed in the open countryside. Such a direction would not only benefit the settlers themselves, it would go a long way towards putting an end to that sporadic and scattered building which has done so much to spoil and suburbanise, and consequently (as many witnesses have pointed out to us) to affect seriously the agricultural production of large parts of the country during the last two or three decades, particularly those parts within the immediate sphere of influence of the towns. Closer building will also facilitate the provision of services.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 204 (E)

Dwellings for single persons

Local authorities have hitherto provided little accommodation for young and middle-aged single people, who have usually found accommodation as lodgers. It is desirable that after the war the control of lodgers and subletting in local authority houses should be carefully exercised and that some purpose-built accommodation for single persons should be provided. This may take the form of a hostel with separate sleeping blocks for the sexes and communal living-rooms, or flats. Flats are particularly desirable for single women.

Ministries of Health and Town and Country Planning. Design of Dwellings Sub-Committee of the Central Housing Advisory Committee. Report (the Dudley report). Design of dwellings. 1944 Part 2 paras. 106-109 (S)

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Housing in rural areas

Housing activities of Rural Districts by Counties. England and Wales.

<i>Administrative County</i>	<i>Estd. population 1938</i>	<i>Acreage 1943</i>	<i>Number of inhabited houses (latest available figures)</i>	<i>Number of houses built by local authorities since 1919</i>	<i>Number of dwellings reconditioned under Housing (Rural Workers) Acts†</i>	<i>Number of unfit houses demolished since 1919</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
ENGLAND:						
Bedford -	85,750	272,348	24,873	2,835	C 28	642
Berkshire -	147,900	433,834	42,513	3,036	D 373	466
Bucks -	155,100	431,720	43,915	3,581	D 158	901
Cambridge -	71,470	305,108	23,013	3,428	D 246	806
Chester -	159,752	481,933	46,759	2,750	C 392	333
Cornwall -	138,800	768,723	43,327	1,443	D 792	77
Cumberland -	115,400	946,565	32,977	860	C 1,013	239
Derby -	288,400	537,391	86,059	6,396	{ C 55 }	1,199
Devon -	219,830	1,528,728	69,891	3,458	{ D 134 }	355
Dorset -	94,340	586,580	28,915	1,411	C 2,082	193
Durham -	270,700	479,225	72,861	16,041	C 400	5,353
Ely, Isle of	31,900	164,906	8,144	1,080	D 768	208
Essex -	193,700	702,482	61,136	6,856	C 113	1,128
Gloucester -	226,800	749,821	70,009	5,235	C 1,302	496
Hereford -	66,080	522,592	19,102	192	{ C 117 }	72
Hertford -	127,380	314,136	38,129	4,665	{ D 236 }	567
Huntingdon -	30,230	204,203	9,304	801	D 502	320
Kent -	283,400	781,177	94,825	5,537	D 168	835
Lancashire -	248,700	663,451	73,587	2,301	C 137	423
Leicester -	160,500	458,548	49,839	3,452	{ C 76 }	812
Lincolnshire:					{ D 3 }	
Holland -	59,170	256,753	16,464	2,098	C 146	299
Kesteven -	72,370	443,051	18,579	1,473	C 83	387
Lindsey -	140,600	922,976	37,078	1,670	D 433	352
Norfolk -	260,600	1,250,448	79,518	7,372	{ C 245 }	1,341
Northants -	105,845	531,382	33,353	3,670	{ D 288 }	1,100
Northumber-					D 941	
land -	94,700	1,196,632	28,679	1,544	C 476	349
Notts -	140,500	438,838	37,077	2,133	D 537	431
Oxford -	95,920	455,613	28,028	2,043	C 250	213
Peterborough -	8,690	43,442	2,502	314	C 460	7
Rutland -	14,580	95,023	4,517	329	D 12	98
Shropshire -	118,200	798,978	32,955	2,816	C 75	303
Somerset -	215,020	982,237	67,820	6,028	D 1,049	995
Southampton -	223,900	834,596	63,638	3,207	{ C 691 }	641
Staffs -	180,700	585,543	44,715	3,459	{ D 90 }	319

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<i>Administrative County</i>	<i>Estd. population 1938</i>	<i>Acreage 1943</i>	<i>Number of inhabited houses (latest available figures)</i>	<i>Number of houses built by local authorities since 1919</i>	<i>Number of dwellings reconditioned under Housing (Rural Workers) Acts†</i>	<i>Number of unfit houses demolished since 1919</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Suffolk East -	113,400	518,272	32,699	2,185	C 953	539
Suffolk West -	63,860	372,912	20,512	1,970	C 126	264
Surrey -	120,600	250,490	34,566	2,181	C 83	138
Sussex East -	142,190	464,284	46,244	1,400	C 202	219
Sussex West -	120,200	377,266	39,997	2,288	C 311	183
Warwick -	139,720	477,186	38,319	3,661	D 187	692
Westmorland	33,320	439,695	9,700	88	C 153	10
Wight, Isle of -	15,740	58,127	5,507	107	C 25	9
Wiltshire -	153,800	828,705	42,843	3,541	C 767	522
Worcestershire	94,680	379,497	28,543	2,296	C 634	355
Yorkshire:						
East Riding -	95,620	706,842	28,312	1,617	{ C 181 D 30 }	487
North Riding	147,500	1,258,998	39,455	1,048	C 415	449
West Riding -	380,368	1,230,495	103,348	14,178	C 279	2,086
Totals for Eng- land -	6,467,925	27,532,352	1,894,173	150,374	20,724	28,213
WALES:						
Anglesey -	29,060	165,001	7,510	360	C 138	38
Brecknock -	37,770	462,240	10,212	478	C 11	98
Caernarvon -	51,955	331,455	14,328	472	C 101	33
Cardigan -	35,250	434,697	11,074	45	C 192	2
Carmarthen -	100,100	573,530	24,727	815	C 80	225
Denbigh -	87,190	396,638	23,849	3,110	{ C 15 C 184 }	465
Flint -	59,720	141,954	18,869	2,029	C 27	184
Glamorgan -	178,900	285,665	46,750	4,365	D 69	404
Merioneth -	22,090	379,953	6,115	71	C 74	36
Monmouth -	39,600	238,313	11,338	424	C 20	91
Montgomery -	28,650	469,048	7,699	90	C 318	—
Pembroke -	43,300	382,378	12,271	93	C 383	34
Radnor -	14,090	292,998	3,873	56	C 42	—
Totals for Wales	727,675	4,553,870	198,615	12,408	1,654	1,610
Totals for Eng- land and Wales	7,195,600	32,086,222	2,092,788	162,782*	22,378	29,823

* Excluding 1,301 houses in Middlesex where all former rural areas have been urbanised but including a small number of houses built by County Councils.

† C—County Administration. D—District Administration.

Ministry of Health. Rural Housing Sub-Committee of the Central Housing Advisory Committee. Third report. Rural housing. 1944 Appendix iv (E)

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Comparative housing statistics for rural and urban areas

(1)	Rural Districts (2)	Comparative figures for Boroughs and Urban Districts (3)	Total for Country (4)	Rural figures (Col. 2) expressed as per cent. of total for Country (Col. 4) (5)
Number of districts, 1919 -	644	1,153*	1,797	—
" " " " 1939 -	475	944*	1,469	—
Population, 1919 -	7,533,567	29,950,433	37,484,000	20-10
" " " " 1938 -	7,195,600	34,019,400	41,215,000	17-46
Number of houses, 1919 -	1,750,000	6,250,000	8,000,000	21-88
" " " " 1938† -	2,092,788	8,908,447	11,001,235	19-02
Average household, 1919 -	4-3	4-79	4-68	—
" " " " 1938 -	3-44	3-82	3-75	—
Number of houses built since 1919 -	870,610	3,376,944	4,247,554	20-50
Percentage of new houses to those existing in 1919 -	49-75	54-03	53-09	—
Number of new houses built by private enterprise -	706,527	2,358,376	3,064,903	23-05
Percentage of private enterprises houses to total built -	81-15	69-84	72-16	—
Number of new houses built by local authorities -	164,083	1,018,568	1,182,651	13-87
Percentage of local authority houses to total built -	18-85	30-16	27-84	—
Number of unfit houses in slum clearance programmes -	67,917	411,083	479,000	14-18
Percentage of unfit houses in slum clearance programmes to total existing at 1919 -	3-88	6-58	5-99	—
Number of unfit houses in slum clearance programmes to be dealt with in Clearance Areas -	29,516	324,484	354,000	8-34
Number of houses in Clearance Areas included in Confirmed Orders -	24,595	246,206	270,801	9-08
Number of new houses built to replace unfit dwellings -	34,495	280,763	315,258	10-94
Percentage of these new houses to number unfit -	50-79	68-30	65-81	—
Number of overcrowded dwellings in overcrowding survey -	41,928	299,626	341,554	12-27
Percentage of overcrowded to total existing in 1919 -	2-40	4-79	4-27	—
Number of new houses built to relieve overcrowding -	8,098	29,624	37,722	21-47
Percentage of these new houses built to number of overcrowded houses -	19-31	9-89	11-04	—

* Housing Authorities.

† Substantial areas which formed part of Rural Districts in 1919 had been 'urbanised' by 1938.

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[The foregoing table shows] comparative rural and urban statistics. 1st January, 1919, to 31st March, 1943. England and Wales.

Ministry of Health. Rural Housing Sub-Committee of the Central Housing Advisory Committee. Third report. Rural housing. 1944 Appendix i (E)

Housing subsidies in central areas and elsewhere

'Housing on central sites thus involves a greater burden on public funds than housing on the outskirts of the town. Under present (1939) housing law the financial assistance given from the Exchequer and rates towards the expense of flats on sites the cost of which, including clearance and other items of development, amounts to £14,000 per acre—which may, it is thought, be taken as a rough approximation of the average cost of suitable central London sites—is £27 a flat (Exchequer £18, rates £9). The assistance for cottages, as distinct from flats, is £8 5s. (Exchequer £5 10s., rates £2 15s.). Reckoning interest at $3\frac{1}{2}$ per cent. the capitalised value of this assistance is as follows:

£27 per annum for 40 years	£576
£8 5s. per annum for 40 years	176
Difference	- - £400

'On the basis of interest at $3\frac{1}{2}$ per cent., the current rate payable on loans obtained from the Public Works Loan Board, the difference between the capitalized values of the two rates of subsidy is £378.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 146 (E)

Housing subsidies during the inter-war period

Private enterprise was practically the only provider of houses before 1914. Local authorities had had powers to provide houses for the working class since 1851, but made little use of their powers until 1919. Working-class housing provided by private enterprise before 1914 was almost wholly for letting.

The output of houses declined from a peak of 130,000 in 1905-6 to 30,000 in 1910-11, the annual increase in number of houses being then far less than the increase in the number of families. This trend continued until 1914 and therefore a large deficiency existed at the end of the war.

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Towards the end of 1919, the Housing (Additional Powers) Act, 1919, provided for the payment of an Exchequer subsidy to private builders who erected houses similar to those in the housing schemes of local authorities. The subsidy was in the form of a lump sum payment of £130-£160 per house, according to size. The houses had to be begun before the end of 1920 and the Exchequer commitment was limited to £15 million. On account of the increasing cost of building this subsidy was increased, in May 1920, to £230-£260. In all 39,186 houses were provided under this Act, the average subsidy being £242 per house.

Prices fell from midsummer 1920, and average tender prices for non-parlour houses was £494 in January 1922, as against £834 a year earlier.

By 1923 increasing activity by private enterprise was evident although subsidies were not obtainable. In the year ended 30th September, 1923, 52,700 houses were erected without subsidy—but not many were within working-class means. The main aim of the Housing Act of 1923 was to set the speculative builder to work on providing small houses for sale or letting.

A subsidy, originally £6 a year for 20 years, was a temporary measure to stimulate production. The Housing Act, 1924, aimed at rapid construction of small houses to let. Subsidy, originally £9 a year for 40 years in non-agricultural and £12 10s. in agricultural parishes, did not prove attractive owing to the limitations on the rent which could be charged. In 1927, the subsidies under the Acts of 1923 and 1924 were reduced by £2 and £1 10s. respectively per house per year on houses completed after 30th September, 1927. Subsequently subsidy under the 1923 Act was limited to houses completed by the 30th September, 1928.

In 1933, subsidy under the 1924 Act was limited to houses in schemes submitted or ready for submission to the Ministry of Health before 7th December, 1932. Thereafter no subsidy was given for the building of houses for general needs whether by private enterprise or local authorities.

Ministry of Health. Private Enterprise Sub-Committee of the Central Housing Advisory Committee. Report. Private enterprise housing. 1944, paras 4-25 (S)

INDUSTRY

Definition of basic industry

'The industries which, for purposes of exchange, send their products to places outside the area in which they are situated, may be termed "basic" industries. They are here termed "basic" in the sense that no community in Gt. Britain can exist without one or more of that type, for the simple reason that the products are needed to pay for the numerous goods and services that are supplied to that community by other communities. They are "basic" industries because they are the foundation of the economy of the areas in which they are established, and they include all those industries that send their products to other areas. The size of these industries in any given area determines the population that can be maintained within it, for it sets a limit to the total amount of commodities that can be brought into that area from outside. Thus, in the last resort, the distribution of "basic" industries in Gt. Britain determines the distribution of the industrial population.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 65 (E)

Provisions of the Distribution of Industry Act, 1945

The Distribution of Industry Act, 1945, is an essential part of the Government's employment policy as set out in the White Paper on Employment Policy, Cmd. 6527. It aims to enable the Government to secure a better balanced distribution of industry throughout the country, and in particular to increase total production and employment by stimulating industrial development in certain areas otherwise threatened with heavy unemployment.

These areas are called 'Development Areas' and those initially chosen are:

- The North-East Coast, Tyneside and Teesside;
- West Cumberland;
- The Industrial belt of South Wales and Monmouthshire;
- The Scottish industrial belt, including Dundee.

These areas include nearly all the former Special Areas but are considerably larger. The Board of Trade have power under Section 7 to add or remove areas from the list with the consent of Parliament.

Sections 1 and 2 empower the Board of Trade to acquire land in Development Areas for industrial development and to erect or prepare sites for factories, ancillary buildings, and key workers' houses

which are needed by industrial undertakings. The Board may also finance the erection of factories, etc., by non-profit making trading or industrial estate companies, such as those established on the initiative of the Commissioners for the Special Areas before the war.

Section 3 confers on the various Ministers of the Crown who are responsible for basic services (communications, lighting, power, water, health, housing and other services on which depends development of the area) power to improve these services in Development Areas. It is the Government's intention so to use these powers that the services of Development Areas become comparable with those available elsewhere.

Section 4 authorises the Treasury (on the advice of an advisory committee) to give financial aid to persons who wish to establish or expand industrial undertakings in Development Areas. This aid replaces that previously available under the Treasury Special Areas Fund and certain other funds.

Section 5 authorises the Board of Trade to acquire and clear derelict land in Development Areas or to give financial aid to clearance by local authorities and non-profit making bodies.

Section 8 provides for the winding up of the affairs of the Commissioners for the Special Areas.

Section 9 provides for notification to the Board of Trade of the erection of industrial buildings of 10,000 sq. ft. floor area or more. Notification must be made 60 days before contracts are let or building operations are begun. The object of this notification is to enable the Board of Trade to give industrialists all available information concerning sites and to discuss location with them from the viewpoints of their own and the national interest.

Board of Trade Journal. Vol. 151 No. 2533 1945 pp. 285-286 (S)

Causes of industrial expansion in the London area, 1923-37

'It has been shown that the migration from other areas into London and the Home Counties has been due to a combination of two circumstances.

'In the first place migration would have taken place even if the expanding industries had not expanded more rapidly in London and the Home Counties than in other parts of the country provided that the contracting industries were located (as indeed they were) in those other parts; for the rate of expansion of London and the Home Counties would have been determined by the rate of expansion of the expanding industries, which was higher than the rate of expansion of

industry in the country as a whole and higher than the rate of growth of the population of the country as a whole. On the other side, the rate of expansion of all industries in other areas was determined by the combined rate of expansion (or contraction) of both expanding and contracting industries. This was lower than the rate of natural increase of the population of those areas (other than the Midlands) for which reason (even though, as was actually the case, the rate of increase of the expanding industries was not lower than the national rate) there was a surplus population available for migration. Thus it should not be supposed that the other areas failed to enjoy the same relative expansion in the expanding industries as London and the Home Counties enjoyed.

'In the second place it has been shown that, over and above the increase in insured population that would have taken place on the assumption that the expanding industries did not increase at a higher rate than in the country as a whole, there was in the London and Home Counties area an inward shift of only about 60,000 insured persons [in the period 1923-37], to which number there should be added an unknown number representing the shift into non-insured occupations. The inward shift was shown to be due to the tendency for certain specified industries, such as general engineering, to grow more rapidly, in the relative sense, in London and the Home Counties than in other parts of the country.

'The broad conclusions suggested by the statistical analysis [in *op. cit.*] may be summarised as follows. In the main, and ignoring that large group of activities of a financial, social and administrative character associated with a capital city, the relative growth of London and the Home Counties area is not due to an increase in London industries at a higher rate than that of similar industries in Gt. Britain as a whole but to the fact that (a) the area is composed almost entirely of expanding industries (and largely of those industries that were growing more rapidly than population in the country as a whole) and (b) such industries form a much smaller proportion of the total in other areas in which the contracting industries form a larger, or much larger, proportion of the total. The apparent attraction of London thus means little more than the normal growth of a prosperous area which is able to foster its prosperity by immigration.

It does not appear to mean a change in the competitive power of London that may not be capable of explanation by the fact that prosperity breeds prosperity.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd 6153 1940
Jones, J. H., Appendix ii p. 279 (E)

INDUSTRY

Government policy concerning the location of industry

The Government will try to secure a balanced industrial development in areas which have in the past been unduly dependent on industries specially vulnerable to unemployment. The Government will encourage the establishment of new enterprises in these 'development areas' by the following means :

Industrialists contemplating the establishment of new factories or extensions to existing factories (excluding small establishments and extensions to them), or the transfer of a factory from one area to another, will be required to notify the Government before their plans reach an advanced stage. The Government will be able to influence the location of new industrial development. Establishment of a new factory in a district where serious disadvantages would arise would be prohibited, while new factories would be steered into areas where further industrial diversification is badly needed. In suitable cases the following inducements would be offered to industrialists who are willing to start factories in development areas.

(i) Munitions factories in development areas will be kept on that work if post-war needs allow it. Factories which are not likely to be needed for munitions after the war will be released as soon as possible, and those owned by the Government will be leased or sold for civilian production.

(ii) If existing factory buildings are insufficient to secure a proper balance of industry in the development areas, the Government will give priority to those areas in granting building licenses for new factories and extensions.

(iii) The policy of building factories in development areas for smaller firms will be continued. These may be either on individual or collective sites, and for sale or lease.

(iv) Regard will be had to the needs of the areas in placing Government orders of all kinds.

(v) Financial assistance will be available for firms which establish themselves in development areas in conformity with the Government policy.

The basic services and communications and other social equipment of the areas will be improved and research will be organised into what types of industry would fit best into the long-term economy of each of the areas.

There will be no final list of development areas. Areas which have regained their prosperity will be removed from the list, while others may be added to it as economic conditions change.

Special Areas legislation will disappear in consequence of this new policy. The Special Areas are not at present depressed, war experience

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has shown that production in them can be as efficient as elsewhere, and much social capital has been invested in them. The Government does not contemplate any large scale transference of population from the Areas. Transference of population will be used only in the cases of small communities where there is no hope of sound economical revival.

No single Government Department could conveniently undertake the responsibility of formulating and administering the policy for the distribution of industry outlined above. It is the policy of the Government as a whole and will involve action by many Departments. The main responsibility will rest with the Board of Trade, the Ministry of Labour and National Service, the Ministry of Town and Country Planning and the Scottish Office.

Standing arrangements will be made for supervising, under the Cabinet, the development and execution of the policy as a whole. There will also be a Regional organisation, bringing together representatives of Departments concerned in the local application of these measures.

It is necessary that there should be a single channel through which Government policy in these matters can be expressed. This channel will be the Board of Trade, which will be suitably strengthened. The President of the Board of Trade will be responsible to Parliament for all general aspects of the policy, and enquiries and representations from interested sections of the public will be made through the Board of Trade.

*Minister of Reconstruction. Employment policy. Cmd. 6527
1944 paras. 26-30 (S)*

The location of industry

The first need is for as many jobs as there are people seeking them, not only in the country as a whole, but in each community—i.e. in each grouping of population comprising not more than about 60,000 people—there should be jobs for all members who want them. Therefore there should be a variety of industries within reach of every community.

Changes in demand and technique are continuously changing the structure of industry and with it the distribution of employment; some industries are always declining and others expanding. Between 1923 and 1938, a period during which the total number of insured work people increased by 21·5 per cent., employment in the following industries fell by more than 30 per cent.: Mining and quarrying, other than iron and coal (59 per cent.); tinsplate (56 per cent.); car-

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riages, carts, etc. (51 per cent.); jute (49 per cent.); cotton-spinning and weaving (43 per cent.); pig-iron (blast furnaces) (41 per cent.); coal mining (40 per cent.); iron ore and ironstone mining (36 per cent.); textile bleaching, printing and dyeing (33 per cent.); woollen and worsted (32 per cent.); linen (31 per cent.). These and other industries, many of which had previously been dependent on the export trade, were highly localised in areas which possessed few of the expanding industries such as electrical engineering or motor vehicle manufacturing. An undue share of the adjustment to structural changes in industry was thus thrown on certain areas such as South Wales, Lancashire, Cumberland, the North-East Coast and South-West Scotland.

The unfortunate results of this local concentration of the declining industries, and so of unemployment, are well known. The manufacturer did not need to count the full social cost of starting a new enterprise in Greater London rather than at Gateshead, for some of the cost consequent on his choice would not be borne by him. The capital locked up in housing, shops and utility services in Gateshead might, in consequence, have to be wastefully duplicated in Greater London. Workers might have to move from the depressed district and be unable to adjust themselves to the new environment; families might be broken up and on the whole it would be the younger people, most valuable to the depressed area, who would move; and the housing and traffic problems of London would be aggravated.

The Government has therefore tried to influence the location of new industry so as to direct more new enterprises in expanding industries into the Special Areas of declining industries.

To provide steady work for its members a community should have a number of different industries within reach, but not industries chosen at random.

Expanding industries are needed to employ those losing jobs in declining industries. One seasonal industry should be located as far as possible near another, so that the slack period of one coincides with the peak period of another. A consumer goods factory near a heavy industry plant would be an advantage, as consumer goods industries do not fluctuate as much as capital goods industries in the course of the trade cycle. In short, diversification of industry is needed in every area.

Secondly, jobs should be available to suit the ability and inclinations of every member of the community, and particularly women as well as men. Before the war, heavy industries and farming were almost wholly

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male occupations, while women predominated in textiles, laundries, hotels and catering. The table below, from the 1931 Census, shows female employees as a percentage of the total employees in each Census Region of England and Wales. Unemployed are included.

<i>Region</i>	<i>Total Employees 000's</i>	<i>Female Employees Per cent.</i>
South-East - - - -	6,490	32.0
Gt. London (incl. above) -	4,117	34.2
North I - - - -	928	20.7
North II - - - -	562	24.6
North III - - - -	1,669	29.7
North IV - - - -	3,116	34.5
Midland I - - - -	2,165	30.2
Midland II - - - -	1,140	29.2
East - - - -	780	23.9
South-West - - - -	906	26.5
Wales I - - - -	781	17.4
Wales II - - - -	297	23.5
England and Wales - -	18,853	29.2

These figures show that in South Wales (Wales I), dependent on mining and metal industries, the proportion of women in employment was only half as high as in Cheshire and Lancashire (North IV) or as in Greater London. The table suggests that there should be something like 30 jobs suitable for women in every 100 available.

Different ages also have their different abilities. In 1931 there were in employment 2,000,000 boys and 850,000 girls under 18. The boys were 8 per cent. of all male earners and the girls 15 per cent. of all female. Industries employ widely different proportions of young workers, but there was no under-employment merely because of the location of industry.

The trouble is to ensure that the jobs are not 'blind-alley' ones. After the war about 2,000,000 boys and girls will need work.

It will be desirable for old people to stay at work in future past the ages at which they were formerly accustomed to retire. In 1961 there will be 8,000,000 people over pensionable age compared with the 4,250,000 of 1931. Lighter work or part-time work may be suitable for these.

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A wide choice of occupations is needed to suit different capacities. And it must be remembered that factory jobs are in the minority, as the following table from the 1931 Census shows.

<i>Occupation</i>	<i>Persons employed in the occupation as per cent. of total employed</i>
Agriculture and Fishing - -	6.4
Mining and Quarrying - -	5.1
Manufacture - - -	34.5
Commerce and Finance - -	11.0
Clerks, Draughtsmen, Typists -	7.3
Transport and Communications -	8.7
Warehousing - - - -	2.2
Public Administration, Professions, Entertainment and Sport -	5.1
Personal Service - - -	12.7
Others and Undefined - - -	7.0

Other considerations are opportunities for advancement which the different industries offer, and the need for the worker to have a choice of employers and to live reasonably near his work. This latter is important from the viewpoint both of health and expense.

Industry cannot, of course, be forced to conform to a Utopian social pattern of this kind. Mr. Hugh Dalton has said recently: 'For good or ill most of our industry is located already.' The important question is how much scope there is for locating industry to suit the employee without loss of efficiency.

In 1935 there were in existence 3,454 factories with 25 or more employees, but the number of new factories of this size started was only 514 or 1.6 of the total; these 514 factories gave employment to 50,000 people. These figures include branch factories and most transfers, but not transfers within the same Board of Trade area, so that some city-centre to city-outskirts transfers are not recorded. In the seven years before the war there was no considerable increase in the number of new factories started but their average size in terms of employment was growing. After the war the situation will be more fluid for some time, more factories will be started and restarted and the opportunity for influencing location will be greater.

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There is never more than a small number of suitable locations for new factories, and it is important to distinguish between *rooted*, *linked* and *mobile* industries for the range of choice open to new enterprises will differ in each case.

Rooted industries. Extractive industries cannot be shifted from the mineral deposits which they mine or quarry. Where transport costs are a large part of total cost, industries must be placed where they can operate at least on low cost, taking into account cheap sea transport. Coke ovens must be near coal mines, oil seed crushing and grain milling are at ports where they use imported material, and so on.

Linkage. Some factories are linked to others in the same or related trades. They may be linked by related technical processes, by using the same raw materials or same kinds of skill, by one using as raw material the finished products of another and in other ways.

The choice of location may be limited by the size of the projected factory. A large factory, employing 2,000 or 4,000 persons, must draw its workers from a large labour market or the disadvantages of a 'one industry' town may arise, and there has been an increase in the proportion of workers employed in large factories. Industries in which large units are typical are, according to the Census of Production, 1935:

<i>Industries</i>	<i>No. of factories with 1,000 or more employees</i>	<i>Employees as % of total employment in the industry</i>	<i>Net output as % of total output in the industry</i>
Aircraft - - -	15	76.5	82.3
Biscuits - - -	14	66.0	68.3
Electrical engineering -	60	60.0	60.4
Tobacco - - -	9	59.3	78.2
Motor and cycles - -	36	57.7	64.4
Silks and artificial silk -	14	47.1 (a)	52.4
Chemicals, dyestuffs, drugs - - -	10	31.7	31.8
Rubber - - -	16	60.1	87.9

(a) A higher percentage for artificial silk alone.

Mobility. Despite important limitations of choice in locating new factories, the mobility of industry has been and is increasing. On the one hand localising factors are becoming less important, on the other employment is decreasing in industries most subject to rootedness and linkage and increasing in more mobile industries and services. Among the reasons for increased mobility are: transmission of power by electric cable; improvements in transport, particularly road transport; replacement of personal interviews by telephone communication; increased use of light metals and consequent decrease in transport charges.

In addition to extractive and manufacturing industries, the so-called 'tertiary' industries must be considered—transport, distribution, commerce, finance, entertainment and central and local government, etc. The importance of these industries is increasing. Some of these industries are rooted, e.g. the railway pattern cannot be greatly changed; and many of the industries render a personal service and must be near the population they serve. The distribution of these industries varies not so much in accordance with population as with income, towns with a higher income per head having usually more tertiary industries.

Some tertiary industries do not need to be near the homes of their customers—central government and some branches of commerce and finance, for example. A dispersal of a proportion of these from London and a few other large cities might be a step towards better industrial distribution.

In present circumstances the varied employment needs of a local community can seldom be met within that community's own borders. But they may perhaps be supplied within that community's *employment orbit*, i.e. the area any point in which can be reached within reasonable daily travelling time by a member of the community. If, broadly, employment opportunities within the orbit were satisfactory the community could be considered up to standard. In certain cases it may therefore be better to improve communications rather than to bring industry within the borders of a particular community.

Industrialists intending to start new enterprises usually favour a prosperous area with a plentiful supply of labour, advantages of linkage and commercial services which would not usually be available within an employment orbit; but it should be possible to provide them within a region containing a number of employment orbits. This suggests decentralisation—a spread of industry and population over a comparatively limited area—rather than dispersal—a spread over a much wider area. Thus the 'overspill' from congested cities is likely to be better accommodated and employed if it is kept in close

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relation to a regional or sub-regional centre than if dispersed into independent new towns.

P.E.P. (Political and Economic Planning). Location of employment. Broadsheet No. 224 1944 (S)

Working pace in Britain and abroad

Variations in working pace and in methods of the organisation of businesses were so great between different countries that I set about getting information and figures to compare them. The figures given below are obtained from American and British and four continental countries. The relative working pace is an approximation, based on a number of tests and agrees with figures obtained by others who used different methods.

The non-productive employees required for each 100 workers were obtained by an actual count on a close check, most of them made by myself. These figures may be regarded as accurate for the representative firms counted but not for each industry as a whole. Assuming men to be working to the same method and tools, the figures show the number of workers needed to equal 100 American workers. Figures for non-productive personnel were the actual number employed to serve the number of productive workers set out above them in the statement. The relative man-hours per unit of work are given and also the percentage of the total pay-roll employed on paper-work in each group.

	<i>American</i>	<i>British</i>	<i>Continental</i>
Productive workers - -	100	120	135
Non-productive personnel -	25	90	135
	125	210	270
Total man-hours per unit of work - - - -	1	1.68	2.16
Non-productives on paper work - - - -	7	60	90
Percentage of total pay-roll on paper-work - -	5.6	28	35

These figures do not include advertising, sales or service staffs but only the complete manufacturing staffs. These figures should not be

taken too literally without study of the full figures on which they were based. Some American figures show the European working pace as being relatively slower than do those I have given. All I desire to establish is that great variations do exist.

I also desire to establish that, although the men have often been criticised for slow working, 'loss of pace' in management has been even greater. The number of men required to serve each 100 productive workers are not guesses; they were taken by count and represent a condition which also exists in other industries.

Two reasons account in part for the tendency for the number of non-productive workers to increase. The first is the growing tendency to appoint academically or financially trained persons to manage production. These persons are trained to work from paper and on paper, and as they try to tighten or extend control they use more paper. The second reason is the trend towards centralisation which adds to paper-work and the time that elapses between a decision being needed and being taken.

Efficiency in manufacturing industry requires that action on the largest number of problems should be taken at as low a level as possible, preferably by a man who needs no paper to assess the factors which must be considered. The higher the status of a man who must take decisions the more paper he requires. If this paper is adequate in detail it soon becomes too copious for the senior man to study fully, and decisions may be taken by assistants in his office who lack both the judgement of the senior and the practical knowledge of the man on the job. Government controls usually add additional movements of paper to still higher levels of authority. If this movement to great distances, handling, sorting and delays, were applied to the handling of materials we would be appalled at the waste: with paper it is too normal to be noticed.

It is commonly asserted the Government control of industry would be bound to wreck it. There is in Canada, Australia and the U.S.A. (whose peoples enjoy the highest average earning rates in the world) general agreement with this view so far as it means State planning and control of the operation of industry. Control of industry has meant to them control of selling prices, where necessary in the public interest, and prevention of price rings and monopolies. Such control is strongest and has existed longest in the U.S.A.

The Americans have no illusions about private enterprise operating for profits. They know how far the public could be and were exploited when the Government was not watchful. They believe that private enterprise working for profit creates the most efficient industry so long as it is kept sharply competitive. American laws are directed to keeping industry competitive.

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The Americans have no advantages in labour, machines, tools or equipment. They have the serious handicap in export of paying nearly double British wages and much more than double Continental wages. Yet they have a huge export trade in mass-produced engineering manufactures and believe the foundation of their success to be the sharper competition among their industries.

ORD, LEWIS C. *Secrets of industry*. 1944 pp. 117-133 (S)

Government policy for the disposal of war factories

The Controller-General of Factory and Storage Premises of the Board of Trade announced yesterday that industrialists who will require after the war a space of 10,000 square feet or more in surplus Government factories or storage premises should apply to the Board of Trade. In time, the Government will be able to release to industry about 1,000 modern factories. The factories will be let for 10 years, with an option to the tenant to take a further lease for a long term. The rents charged will be those which could have been obtained for similar accommodation in the open market in 1939, and will be subject to review after 3 years.

In allocation of factories the following factors will be taken into account: establishment of a balanced distribution of industry; re-establishment and expansion of the export trade; maintenance of a war potential; requirements of town and country planning; the ability of individual applicants for factories to make efficient use of the premises with a minimum of reconstruction; and the claims, on grounds of equity, of firms whose factories have been damaged or destroyed by enemy action or have been requisitioned by the State under concentration schemes or otherwise.

During the war the Government have requisitioned about 20,000 factories and in the release of these the same principles will be applied as in the allocation of Government surplus factories.

The Times 11th Oct. 1944 (S)

Post-war industrial prospects in Britain and U.S.A.

When in 1938 the threat of war forced Britain to build up war production quickly, it was found that available firms in war industries had not nearly enough capacity. Some large new modern factories were built, but other and quicker means had to be found to build up

production. Extensions were built to existing factories, premises previously used for other purposes were adapted and subcontracting was widely used. Risks of air attack were added to other difficulties. Some large factories had to be moved, others were dispersed. Output at the maximum rate in the minimum time did not allow the most efficient methods, from the industrial viewpoint, to be used.

In America, with the country not at war, expansion to meet war orders took place by normal peacetime methods of building large modern self-contained factories for operation on mass-production lines. Early in 1943, Mr. Jesse Jones, American Secretary of Commerce, stated that the Defence Plant Corporation had built and financed the construction of 1,479 plants and other facilities at a cost of £1,750 millions. When private expenditure on similar facilities is added to Government expenditure, it is clear that American industry has been tremendously expanded and modernised during the war.

In addition, war work has been increasingly concentrated in larger and more efficient factories. Towards the end of 1941 official figures showed that 100 companies held between them 82 per cent. of American war orders. Four companies held 21 per cent. between them and General Motors expected their output rate—not orders—to reach £1,000 millions per annum by September 1942. It should be added that large American companies do not generally subcontract work except to associated companies. During the latter part of 1941 and increasingly during 1942 it was reported that smaller businesses were failing and going out of business.

America has paid very great attention to post-war industrial efficiency and has no reconstruction and repair problems. In Britain, post-war industrial plans have been more concerned with the control of industry than with its efficiency.

Britain once paid the highest industrial wage rates, had the greatest export business and was by far the wealthiest country in the world.

The situation has changed. America pays nearly double, and the Dominions 50 per cent., above British industrial wage rates, and Britain's export trade and wealth have sunk alarmingly.

The technique of mass production has been developed to great efficiency in the U.S.A., while the American Government activity intervened where necessary to prevent combinations to raise or maintain prices, and thus ensured industrial efficiency.

Britain did not understand nor effectively apply the technique of mass production. Sharp competition was called ruinous. Firms were encouraged to form trade associations, and prices were raised and profits protected.

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There is no miracle about American achievements in industrial efficiency. With equally efficient factories, tools, designs and management British industry can be made as efficient as any other. Some British industries are as efficient as any others. No special methods are needed to know which British industries are efficient: persons concerned with exports or tariffs cannot help knowing.

ORD, LEWIS C. *Secrets of industry*. 1944 pp. 145-158 (S)

LAND ACQUISITION

Agricultural land acquired for other purposes, 1927-39

	<i>Building and general constructional development</i>	<i>Sports grounds</i>	<i>Aero- dromes or Air Ministry</i>	<i>War Office</i>	<i>Others or unex- plained</i>	<i>Total</i>
Average of 7 years, 1927-28 to 1933-34	<i>acres</i> 42,000	<i>acres</i> 10,000	<i>acres</i> 600	<i>acres</i> 200	<i>acres</i> 700	<i>acres</i> 53,500
1934-35	57,000	11,000	3,000	200	2,600	73,800
1935-36	55,000	13,000	10,000	1,500	—	79,500
1936-37	56,000	11,000	10,900	2,000	100	80,000
1937-38	56,000	14,000	12,200	4,700	700	87,600
1938-39	54,000	10,000	24,500	8,000	2,100	99,400
Total of 12 years -	572,000	129,000	64,800	18,600	10,400	794,800
Average per year -	47,650	10,750	5,400	1,550	850	66,200

'These are gross figures. To offset them it is necessary to make allowance for land which, apparently lost to agriculture through building . . . has subsequently been returned to it. In each of the three years immediately before 1939, the amount of land thus returned was estimated at somewhere about 10 per cent. of the gross total estimated to have been lost. So the average net amount of land occupied by various kinds of buildings and other constructional development between 1927 and 1939 was about 60,000 acres a year'.

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 88 (E)

Cost of land acquisition for housing after the 1914-1918 war

It might have been expected that the demand for land for housing [after the 1914-18 war] would have led to profiteering. But land prices have not been subject to the general inflation. There appears to be four main reasons for this: (i) the public spirit of the land owners; (2) the practical standstill of private building and consequent limited demand for building land; (3) the vigilance of the Land Valuation Dept. of the Inland Revenue; (4) the powers of

compulsory purchase given to local authorities by the Acquisition of Land Act.

The Land Valuation Department has done valuable work and saved the country considerable sums of money. Before negotiating for any site, the local authority applies to the District Valuer for a valuation of the land and a copy of this valuation must accompany the site proposals when they are sent to the Housing Commissioner for approval. The negotiations for purchase may be conducted by anyone whom the local authority appoints for the purpose but the District Valuer will do so. Where negotiations fail the matter is referred to the Valuation Dept. who advise on procedure. In the case of a deadlock the ultimate resort is to compulsory purchase, for which the procedure has been simplified, and the method of valuation, in the case of slum areas, completely revised. The great majority of sites have been bought by voluntary agreement at an average price of £181 per acre.

The choice of satisfactory sites has caused little difficulty except in areas liable to mining subsidence.

THOMPSON, F. LONGSTRETH *State housing. Town Planning Review Vol. viii 1920 pp. 155-156 (S)*

Cost of land acquisition for street widening in London

'In order to offset the handicap of high land values in the large towns more intensive use tends to be made of the land by the erection of higher and, therefore, more expensive buildings. The result is that considerable sums have to be found from public funds for the payment of compensation in respect both of site values and buildings when public improvements or attempts to remedy the mistakes of the past are made, and it is precisely in the large towns, where the values of land and buildings are highest, that measures of improvement or redevelopment are most needed. In his Greater London Highway Development Survey (1937) Sir Charles Bressey said that in densely congested areas like the heart of the City of London the cost of comparatively insignificant street widenings sometimes works out at a rate exceeding £2,000,000 a mile, and even this leads to no conclusive result, as is shown by the recurrence of widenings in the same streets by successive generations.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 193 (E)

LAND ACQUISITION

Cost of land acquisition in London

'Cost of purchase and clearance of lands acquired by the L.C.C. under the Housing Act 1930, within the County of London during the year 1935.

<i>Locality</i>	<i>Acreage</i>	<i>Cost</i>	<i>Cost per Acre</i>
		£	£
Lambeth - - - -	3.59	56,000	15,962
Hackney - - - -	4.64	42,000	9,050
Lewisham and Greenwich - -	4.57	41,000	9,192
Poplar - - - -	0.88	10,500	10,600
Battersea - - - -	4.37	48,000	10,980
Lambeth - - - -	7.79	112,000	14,378
" " - - - -	4.91	55,000	11,303
Hackney - - - -	3.00	43,000	14,333
Camberwell - - - -	9.72	104,000	10,700
" " - - - -	1.16	14,000	12,070
St. Marylebone - - - -	2.71	56,000	20,064
Greenwich - - - -	3.14	27,000	8,566
Camberwell - - - -	1.50	23,000	15,333
Poplar - - - -	1.56	30,000	19,230
Finsbury - - - -	0.56	18,000	32,143
Woolwich - - - -	2.80	18,000	6,431
Lambeth - - - -	8.00	115,000	14,625
" " - - - -	2.27	33,000	14,503
Bethnal Green and Stepney -	1.64	28,000	17,000
Stepney - - - -	5.68	110,000	19,700
Deptford - - - -	4.35	50,000	11,494
Total - - - -	78.94	1,033,000	—
Average cost per acre -	—	—	13,086

Note.—The above figures include land outside a clearance area purchased for the purpose of rounding-off the site.'

WARREN, HERBERT *Decentralisation of population and industry. Town Planning Institute Journal Vol. xxiii No. 5 1937 p. 125 (E)*

LAND ACQUISITION

Cost of land acquisition in London

He had previously stated that the average price of land in London was about £12,000 an acre. He had now obtained some further details of the cost of lands acquired before the present war for slum clearance and replanning. They were as follows per acre:

Bermondsey, £22,000; Bethnal Green, £22,000; Lambeth, £29,000; Holborn, £30,000; Finsbury, £37,000; Stepney, £33,000; St. Pancras, £32,000; Stoke Newington, £12,000.

Land had been bought in Holborn at a rate of £45,000 an acre and in St. Marylebone at £27,000. A price at a rate of £1,000,000 an acre had been asked in connection with an improvement in the Strand.

LATHAM, LORD *House of Lords. Official report. 28th Sep. 1944 cols. 235-236 (S)*

Government policy concerning land acquisition, 1944

The Government accept the principle of the Uthwatt recommendation that land in areas requiring redevelopment as a whole should be publicly acquired, but they do not accept the Uthwatt detailed proposals for dealing with compensation and betterment. Instead, the Government put forward the following general scheme:

The Minister of Town and Country Planning, the Secretary of State for Scotland and Local Planning Authorities need to be armed with effective powers to control development and redevelopment and to see that approved development and redevelopment are carried out on the right land at the right time. These powers should be similar for developed and undeveloped land.

The power of public purchase of land will be given to local authorities, with the consent of the Minister,

(i) Where the approved development or redevelopment can, under the existing law or the Bill now before Parliament, be carried out by the authority;

(ii) Where large-scale redevelopment of severely war-damaged or obsolescent urban areas is required.

The price to be paid on public acquisition of land will, for five years, be fixed on the standard of value ruling on 31st March, 1939.

A reserve power of compulsory purchase will be provided for cases where the landowner is unwilling to sell land for such development as is needed in the interests of good planning and would not otherwise be obtained.

Development rights will remain vested in the owner, but they will not be able to be used until approval of the proposed development or redevelopment has been obtained from the Planning Authority.

LAND ACQUISITION

Owners of all land will for the future, whenever permission is granted to develop or redevelop for a different use, be subject to a Betterment Charge at the rate of 80 per cent. of the difference between the value of the land with the benefit of the permission and its value if permission had been refused. In cases where refusal would have attracted compensation, a suitable set-off for such compensation should be made from the Betterment Charge.

Owners of all land, which on the 31st March, 1939, had some development value, will, upon any future refusal to develop or redevelop, be entitled (with certain exceptions) to be paid fair compensation in respect of the loss of development value existing on 31st March, 1939, but will not be entitled to compensation for development value accruing after that date.

Fair compensation will avoid any excess over true development value caused by the element of 'floating value'.

Owners of land which on the 31st March, 1939, had no development value, will not in the future receive any compensation on refusal to develop or redevelop.

The precise formula for determining fair compensation will be settled after a period of five years.

The payment of compensation and collection of the Betterment Charge will cease to be the responsibility of local authorities and will be centralised in a Land Commission. This proposal has been framed on the assumption that the control of land use will be so managed that over a reasonable period of years, and over the country as a whole, receipts of Betterment Charge will broadly balance payments of fair compensation.

The meaning of the term 'different use' will need to be accurately defined in coming legislation. The general intention is to levy the charge wherever the owner is allowed substantially to change the nature or scale of his use, so that the value of the land is materially increased. Change from one form of agriculture to another will not, for this purpose, be considered a change of use. The use of land, not previously so used, for the winning of minerals, whether by surface or underground mining, would constitute a 'different use'. In this case special considerations arise and the application to it of the general scheme is still under examination.

Minister of Town and Country Planning. The Control of land use. Cmd. 6537 1944 paras. 14-17 (S)

LAND CLASSIFICATION

Classification used by the Land Utilisation Survey

'No complete soil survey of the country has yet been carried out, but an attempt has been made by the Land Utilisation Survey to arrive at a general classification of land according to its actual and potential productivity and its inherent fertility. This classification, which is based on present and past land utilisation and such other evidence in the form of soil and vegetation surveys as may be in some areas available, as well as on local knowledge, divides the land into ten principle types, from 1, the finest farm land suitable for intensive cultivation, to 10, land agriculturally almost useless such as shingle spits and rock outcrops. The first four categories, which comprise the good agricultural lands, both arable and grass, are roughly estimated to cover 16,579,500 acres or 44·2 per cent. of the land surface of England and Wales; the next two categories are the lands of moderate quality and cover about 12,886,500, acres or 34·2 per cent. of the land surface; while the last four categories are the poor quality land, mostly mountain moorland, lowland heath, ill-drained very heavy land, rough marsh pasture and saltings, and cover 7,423,000 acres or 19·8 per cent. of the land surface. The remaining 1·8 per cent. of land is occupied by the chief towns. Smaller towns, villages, roads, etc., are included in the acreages of the types of land they occupy.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 15 (E)

LAND OWNERSHIP

Municipal ownership in Germany

A return showing the extent of municipally owned land in German towns with over 20,000 inhabitants was obtained by the Deutscher Städtetag [German Union of Towns] in reply to a questionnaire in December 1924. The full results were published in the *Mittheilungen des Deutscher Städtetages* in September 1925.

For a total of 204 towns, municipally-owned land, exclusive of streets, within the municipal boundary averaged 23·7 per cent. of the total area. In forty-five towns with a population exceeding 100,000, the average is 25·2 per cent.; in forty-seven towns with populations between 50,000 and 100,000, the average is 27·6 per cent.; and in 122 with populations between 20,000 and 50,000, 19·1 per cent.

Twelve towns own more than half their area, the highest percentage being owned by Rostock, a town of about 70,000 inhabitants, which

LAND OWNERSHIP

owns 84.3 per cent. of its area of 25,000 acres. Other high percentages are Eberswalde (69.9), Koslin (66.3), and Freiburg i. Br. (65.2). The percentages in other towns are Berlin (29.8); Breslau (40.4); Frankfurt (45.4); Munich (17.5); Leipzig (35); Dresden (14.7); and Karlsruhe (41.7).

Population of towns	All Germany Land municipally owned* as percentage of total area of towns				
	Over 75	50-75	25-50	10-25	Under 10
Over 250,000 - -	—	—	9	9	—
100,000 to 250,000 - -	—	—	9	12	6
50,000 to 100,000 - -	1	4	12	16	13
20,000 to 50,000 - -	—	7	17	37	46
	1	11	47	74	56

* Excluding streets and squares.

The return also shows the proportion of built-up land in each town, extent of open spaces, density of population and other particulars, and the following details have been extracted :

	Approx. popula- tion	Total area (acres)	Built-on land (including courts and gardens) (acres)	Public parks and gardens (acres)	Recrea- tion grounds (acres)
Berlin	4,012,000	217,642	32,720	4,497	1,369
Hamburg	1,102,000	43,521	7,662	995	437
Cologne	715,000	63,551	7,092	858	231
Breslau	572,000	12,157	3,750	869	331
Weisbaden	104,000	8,912	1,085	222	19
Darmstadt	90,000	14,235	1,610	93	118
Göttengen	42,000	6,498	707	200	19

Town Planning Institute Journal Vol. xii No. 3 1926 pp. 62-65 (S)

LAND RECLAMATION

Reclamation of spoil mounds

Spoil mounds of varying type and composition are an inevitable result of many mining and manufacturing operations, and an increasing interest has recently been taken in the vegetation of spoil mounds in order to improve local amenities. Knowledge of the ecology of pioneer vegetation, both forest and grassland, can suggest methods of establishing a vegetation cover on these spoil mounds.

In Gt. Britain, the industries responsible for spoil mounds include coal mining, quarrying for iron and other minerals, and the manufacture of chemicals, pottery and glass. Once the planning authority has decided whether the reclamation is for amenity purposes, including parks and recreation grounds, or to yield an economic return, the plant ecologist and soil specialist must decide the most suitable species of trees or plants and the best method of establishing them. Surveys will be necessary to determine the degree of weathering of the spoil material, the nature of the soil, and information on soil moisture and drainage.

Grass swards can probably only be attempted after levelling. The establishment of grass can be greatly accelerated if a covering of 6 to 9 inches of soil or compost made from town waste can be provided, but it should be possible to establish certain types of grass even on the crude tip material after a certain amount of weathering has taken place, especially if the weathered surface layer on the tops of the mounds can be preserved during levelling.

If soil is available, the usual technique of establishing grass on poor soils can be adopted, starting possibly with rape and turnips which can be grazed by sheep, and following with a grass-legume mixture. Direct turfing is also possible.

If soil is not available, it will probably be necessary to use species with very low fertility requirements, not generally used for agricultural purposes. There are indications that certain low-fertility grasses and weeds could be established, and lupins can be grown to increase the nitrogen content of the soil. Unorthodox methods, such as the spreading of mixtures of root or rhizome cuttings of bracken or *Agrostis* may also be applicable in some cases. The aim of all this work is to improve the organic content and nutrient status of the soil, up to a stage when the establishment of superior species can be attempted. The creation of market gardens and allotments on tip-soil is dependent on the availability of organic manures. If stable manure can be obtained, good crops of vegetables can be expected, and have actually been obtained, on the tops of coal tips.

In many cases, however, tree planting will be the method adopted for spoil mound reclamation; either because the cost of levelling would be prohibitive or for other reasons. This aspect of the subject raises a number of special problems. Trees species, size and quality of planting stock and method of planting will require careful study, as waste materials are very variable in composition and rate of weathering, and species which do well on one site may not do so on apparently similar sites.

Old, well-weathered spoil mounds are readily covered with natural vegetation, and should offer little difficulty in the establishment of trees. First trees to be planted on poor sites should be true pioneer species—having low nutrient requirements, vigorous root growth and able to build up the organic content of the soil through the annual fall of leaves and other debris. Species of willow, birch, poplar and alder are useful for this purpose. Best results are obtained if the trees are planted with their roots in a ball of earth.

If feasible, a new tip may usefully be covered with soil, and the use of over-burden from sand quarries has been suggested for this purpose. Gorse, broom and alder are valuable as nitrogen fixers, and also provide shelter on exposed sites if established before the young plants of the main crop are put in. Among tree species which have been recommended for use on spoil mounds in Gt. Britain, in addition to those already noted, are: mountain ash, elder, wild cherry, wych elm, hawthorn, laburnum, sycamore, ash, Austrian pine, Corsican pine, Scots pine and European larch. Of the conifers, Corsican pine is particularly recommended as it stands up to smoky conditions and thrives on a low rainfall.

Apart from soil conditions the choice of tree species may be limited by exposure of the site to wind or insolation. Air pollution by certain gases may prevent the establishment of any kind of vegetation, while with other forms of pollution, such as smoke, vegetation can be grown but the species must be carefully chosen. Deciduous species have an advantage in that they lose their leaves annually. Among species which stand smoke well are alder, willow, birch, mountain ash, London plane, certain species of poplar and Corsican pine.

Plantations must be protected from damage by animals and human beings, and success depends not only on first planting but on subsequent care. After visiting representative areas in the Birmingham area and South Wales, the general conclusion can be drawn that a great deal may be done in a short time, and reasonably soon after tipping has stopped, providing soil analyses are made and expert advice taken.

A full statement of the information available from the literature

and local experience is now in preparation and is to be issued as a Joint Publication of the Imperial Agricultural Bureaux.

SISAM, J. W. B., and WHYTE, R. O. *Establishment of vegetation on coal tips and other spoil mounds. Nature Vol. 154 No. 3912 1944 pp. 506-508 (S)*

LAND REGISTRATION

Recommendations of the Land Transfer Committee

The Committee considered the recommendation of the Committee on Land Utilisation in Rural Areas [the Scott Committee] that registration of title to land should be made compulsory over the whole of England and Wales, and should be completed within 5 years.

The Land Transfer Committee are satisfied that under war conditions and for a reasonable period after the war, it is not possible to make further progress with the compulsory registration of title. We are also satisfied that the introduction of general compulsory registration of title by all landowners irrespective of sale is not possible at any one moment of time.

When land comes to the Land Registry for registration on sale, the title has already been thoroughly investigated by two parties, and the operations to be performed by the Registry are thus immensely facilitated and expedited.

We are satisfied that compulsory registration on sale must proceed by stages, but by much quicker stages than heretofore. The best method of procedure, in our view, would be to ascertain from the Minister concerned with post-war development what areas are likely to be developed first. The programme thus furnished should govern the choice of areas for compulsory registration on sale. Land acquired by the State should be registered on purchase wherever it is. In choosing the areas, regard should be had to the areas which the Ordnance Survey intends to survey for other purposes. The aim should be to introduce compulsory registration as quickly as possible in areas which are being or are to be developed.

This programme will require a considerable extension of the Land Registry. Experience has shown that personal visits by solicitors bringing in titles for registration, or wishing to conduct a search, delays rather than expedites business. But the public throughout the country are unlikely to appreciate this, and would resent the introduction of an unfamiliar system if they thought themselves compelled to resort to London.

Branch offices should therefore be established. Well-informed opinion suggests that an area containing 4,000,000-5,000,000 in-

LAND REGISTRATION

habitants would be suitable for the operation of such a branch Registry.

Some improvements in the detail of the system of registration as now practised could possibly be introduced. We favour the retention of provisions for voluntary registration.

*Lord High Chancellor. Report of the land transfer committee.
Cmd. 6467 1943 (S)*

LAND SETTLEMENT

Progress up to 1939

The term 'land settlement' comprises in this country two ideas—re-distribution of population so that townsmen can be gradually resettled on areas where, while following their urban occupation, they can also have normal access to the country; and the planning of our agriculture in such a way that there is a recognised place for the small producer, and sufficient openings for the man with little capital to set his foot on the ladder of independence. In this narrower sense, land settlement means the establishment of small-holdings.

The term small-holdings applies roughly to those farms which do not exceed 50 acres. Already there are over 160,000 of these—about 44 per cent. of the total number of farms in the country. These holdings yielded on the average before the war a very poor income—often less than that of an agricultural labourer—and one of the main problems to be solved is how to raise the income-level of this large number of small farmers. There therefore does not seem a good case for trying to establish any large number of new settlers in holdings of their own—as opposed to an extension of part-time allotment cultivation and provision for some landless wage-earners to set up on their own.

Probably after the war there will be demands for small-holdings from two sources—from ex-servicemen who want to settle on the land, and from agricultural wage-earners who want to become independent producers.

It is neither economically nor socially desirable to offer men holdings and take no steps to see that there is a real chance of their being able to earn a decent livelihood from them. Before the war, the average earnings of small-holders in many areas was far too low to provide a decent living, and their hours of work were too long. Nevertheless a national scheme for establishing men on small-holdings was in operation. Under the various Small-Holdings Acts, County Councils had bought or leased land on which, during rather more than forty years, some 30,000 small-holdings had been estab-

lished, and in 1937 over 4,000 acres of land were acquired for this purpose. Land acquisition ceased on the outbreak of war, and before County Councils are allowed to resume, attention will presumably be given to the need to revise the scheme in order to increase the earning capacity of the small-holder and of integrating small-holding policy with that for the country's general food production.

Of all the holdings provided since the scheme began in 1892, a very large proportion are small plots which serve as a by-occupation for an agricultural worker or are used for non-agricultural purposes. Before more public money is spent on small-holdings it is desirable to determine exactly what purpose they are intended to serve.

Lack of capital and the low earnings to be expected are the main reasons why more agricultural workers have not applied for small-holdings. The Land Settlement Association has a scheme which enables agricultural workers who have not enough capital to borrow the balance needed to set up on one of the Association's estates.

If we start fresh schemes for establishing people on the land, we must also strengthen the economic position of all existing small-holders and small farmers whose holdings already provide one means whereby wage earners can become independent producers. Land settlement policy in the limited sense will then become the provision of holdings in such numbers as will be necessary to give the agricultural wage-earner a reasonable chance of obtaining a holding which will yield an adequate livelihood 'while he is still young and vigorous—say in the 'thirties.

The experiments undertaken before the war at the instance of the Government by the Land Settlement Association, the Durham County Council and the Welsh Land Settlement Society in settling unemployed urban workers on the land have shown the advantages of organising land settlement on co-operative principles. On the estates of the Land Settlement Association tenants who are countrymen have generally been ready to accept the control over buying and selling which is a condition of tenancy.

The secret for improving the economic position of the small-holder lies in co-operation, as has been proved in Denmark, Holland, Belgium and elsewhere. The experience of these countries can give us much valuable information, but our methods for reaching similar ends must be adapted to British methods and institutions. Capital available on reasonable terms, a service of technical advice and co-operative buying and selling are the essentials for a successful land settlement scheme. Given these there is no reason why any great financial burden should fall on the State.

RICHMOND, A. C. *Land settlement and town planning*. 1945
(S)

LAND UTILISATION

Allocation of land in approved schemes

Table continued
on page 147

Year	Use Zones					
	Residential	Business	Industrial	General (including business and industrial)	Rural and similar	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1938-39 - -	8.1	0.3	1.2	0.4	71.4	0.6
Average for 5 years: -						
1934-38 - -	51.7	1.9	5.8	0.8	—	1.9

Eighty schemes were submitted to the Ministry of Health during the year 1938-1939, compared with 31, 16 and 8 respectively in 1937-38, 1936-37 and 1935-36.

The total area under planning control in England and Wales on the 31st March, 1939, was 26,281,000 acres.

Source: Ministry of Health, *Annual Report 1938-39*.

Areas occupied by industry

ENGLAND AND WALES

Place	Total area of town	Approx. area of developed portion of town	Approx. area occupied by industry		Approx. area occupied by railways	Total of Cols 3 and 5	
				Per cent. of col. 2			Per cent. of col. 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bradford -	22,880	10,054	980	9.7	561	1,541	15.3
Bristol -	18,445	12,500	1,500	12.0	430	1,930	15.5
Gloucester -	2,318	1,900	275	14.5	150	425	22.4
Ipswich -	8,432	2,600	160	6.0	150	310	12.0
Leeds -	28,090	15,300	1,680	11.0	913	2,593	17.0
Leicester -	8,586	6,900	390	5.6	375	765	11.0
Norwich -	7,923	2,050	115	5.6	200	315	15.3
Nottingham -	10,935	4,265	1,050	24.6	711	1,761	41.0
Rochdale -	6,446	2,272	320	14.0	327	647	28.4
Sheffield -	31,625	10,412	1,061	10.0	451	1,512	14.5
Totals -	145,680	68,253	7,531		4,268	11,799	
Averages -				11.0			17.28

Note.—Areas are in acres.

PEPLER, G. L. *Proportion of area occupied by industry. Town Planning Review Vol. xii No. 2 1926 p. 123 (E)*

LAND UTILISATION

(Table continued from page 146)

Restricted against general development pending issue of General Development Orders				Permanently restricted or prohibited	Open Spaces			Allotments	
Residential	Industrial	Undertaken	Other		Existing public open spaces	Proposed public open spaces	Private open spaces and agric. or other open belts	Existing	Proposed
(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3.5	0.1	8.0	0.8	3.3	0.4	0.2	1.1	0.02	0.02
5.9	0.1	5.4	1.0	1.9	5.7	2.1	10.9	0.4	0.4

Town planning Institute Journal.-Vol. xxv No. 12 1939 p. 362 (S)

Decline of arable cultivation

'In 1871 the total amount of agricultural land in England and Wales (excluding rough grazing) was 26,322,000 acres of which 14,946,000 acres were devoted to arable cultivation and 11,376,000 to grassland. In 1900, the arable acreage was 12,217,208; in 1910, 11,320,444 acres. This continual downward trend was arrested for a brief period during the war of 1914-18 when this country was forced by unrestricted submarine warfare to rely on its own land to produce a far larger quantity of the nation's food. But with the repeal of the Corn Production Acts in 1921, the former downward trend was resumed and even accelerated, and the subsequent figures of arable acreage were in 1925, 10,682,053 acres, and in 1938, 8,877,712.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 46 (E)

Proportions of land used for various purposes, 22 American towns

There is too little stability and permanence of land use and land and building values in American cities. Blighted districts are not accidents but inevitably arise from the present method of growth of American cities. Their origin lies in excessive real estate speculation. Zoning has two origins: the desire of better residential districts to obtain protection, and the desire of municipal authorities to avoid the losses caused by uncontrolled growth. Zoning has not succeeded in its aims, chiefly

LAND UTILISATION

because zoning ordinances have been based on insufficient information.

This research [*op. cit.*] aims to determine the land area needs for various purposes of the American city and the ratios of those areas to a given population unit. It should help to estimate the total area required for each urban use for any given future urban population of between 5,000 and 300,000 persons. The information has been calculated from uniform field surveys in 22 more or less typical cities of under 300,000 population. 16 of the cities are self-contained, varying in size from 8,697 to 307,808. 6 are 'satellite' cities with sizes from 1,525 to 23,430.

There are two main limits to the size of an urban area. First, the greatest area which can be maintained and improved by a reasonable tax levy within given population limits. City charters fix financial

Cities	Population at date of Survey	Total city area in Acres	Total developed area in Acres	Total dwelling area
Knoxville, Tenn. - -	100,201	15,744	8,275	43.05
Vancouver, B.C. - -	143,560	10,560	7,450	31.19
San Angelo, Tex. - -	22,711	3,776	2,686	26.90
Fort Worth, Tex. - -	152,730	28,736	15,899	33.00
Cape Girardeau, Mo. -	15,323	4,992	1,913	33.07
Sacramento, Cal. - -	90,352	8,896	5,201	37.94
San Jose, Cal. - - -	55,667	6,080	3,720	47.30
Springfield, Mo. - -	57,248	8,768	5,587	52.28
Cedar Rapids, Ia. - -	55,731	17,984	5,966	36.51
Tulsa, Okla. - - -	141,281	13,760	8,343	44.74
Louisville, Ky. - - -	307,808	24,192	18,844	41.59
Peoria, Ill. - - - -	105,155	7,808	5,852	42.40
Jefferson City, Mo. -	17,572	3,718	1,601	38.22
San Antonio, Tex. - -	231,542	23,040	15,836	42.78
Troy, O. - - - - -	8,697	1,374	958	38.53
Binghamton, N.Y. - -	77,609	6,445	4,099	39.77
Totals - - - - -	1,583,187	185,873	112,230	
Averages - - - - -				39.33
Clayton, Mo. - - - -	8,902	1,445	887	47.7
University City, Mo. -	23,430	3,712	1,333	47.9
Maplewood, Mo. - - -	12,133	984	744	52.5
River Forest, Ill. - -	8,901	1,536	1,046	45.3
Ferguson, Mo. - - -	3,807	1,175	581	53.8
Shrewsbury, Mo. - - -	1,525	366	208	41.8
Totals - - - - -	58,698	9,218	4,799	
Averages - - - - -				48.2

Table continued on page 149

LAND UTILISATION

limitations in almost every city, so that the rate of urbanisation is undoubtedly limited by this factor, although it is difficult to say to what extent. Second, the maximum amount of time now spent on the journey to work is between 45 minutes and 1 hour: few people will spend more. Improved transport may extend the effective radius a little but there is a definite limit to such extension. Large cities will presumably continue to expand up to the limits imposed by these two factors. The area over which smaller cities can expect to expand is controlled entirely by their ability to finance and maintain urban improvements.

The term 'developed area', as used in this text, includes all of the area that is used for any urban purpose, public or private—such as streets, railroads, parks, dwellings of various kinds, and all commercial and industrial uses. 'Vacant property' is that portion of the

Percentage of developed area occupied by various uses

<i>Com- mercial</i>	<i>Light industry</i>	<i>Heavy industry</i>	<i>Railroad Property</i>	<i>Combined light and heavy industry and railway</i>	<i>Streets</i>	<i>Parks and play- grounds</i>	<i>Public and semi- public</i>
1.82	2.94	4.07	7.83	14.84	27.97	0.86	11.46
3.06	1.74	—	—	3.60	41.39	18.52	2.24
1.44	—	—	—	9.70	58.55	2.36	1.08
1.28	1.79	3.11	8.13	13.03	39.16	7.82	5.74
1.85	—	—	—	17.10	39.28	2.32	6.38
3.72	4.64	—	—	9.10	35.84	7.09	6.31
2.40	5.86	—	—	10.20	34.94	1.02	4.14
2.10	1.84	1.80	4.84	8.48	28.36	5.21	3.61
2.09	2.35	1.72	7.65	11.72	32.94	7.44	9.28
2.59	2.41	2.72	2.54	7.67	36.26	2.95	5.80
2.85	5.90	2.55	2.71	11.16	25.21	9.98	9.21
2.70	2.08	5.22	6.13	13.43	30.83	6.62	4.02
2.77	2.84	1.56	6.30	10.70	31.61	5.06	11.64
2.61	2.47	1.48	3.43	7.38	30.48	6.01	10.74
1.14	3.94	4.05	4.66	12.65	23.78	8.56	15.34
3.58	4.11	1.39	6.28	11.78	20.75	9.32	14.80
2.38	3.21*	2.70†	5.50†	10.79	33.61	6.33	7.61
1.2	—	—	—	4.2	33.0	1.5	12.5
2.0	—	—	—	2.0	38.2	2.5	7.4
2.9	—	—	—	15.2	25.4	0.9	3.1
0.9	—	—	—	4.5	28.4	2.6	18.3
1.1	—	—	—	7.1	26.3	0.0	11.7
0.5	—	—	—	28.9	27.0	0.0	1.8
1.4	—	—	—	10.3	29.7	1.3	9.1

* Average in 14 cities.

† Average in 11 cities.

LAND UTILISATION

municipality which at the date of the survey was unused for any urban purpose as defined above. 'Privately developed areas' comprise all land developed by private capital for private use, form a large part of the average city, and include residential, commercial and industrial areas. 'Public and semi-public property' is here used to mean cemeteries, churches, libraries, private clubs, city property, etc. Streets, railroads and parks and playgrounds are separately considered.

BARTHOLOMEW, HARLAND *Urban land uses. Harvard City Planning Studies iv 1932 pp. 3-14; Tables 1, 2, 58, 59 (S)*

Land utilisation in the London area

	<i>London (L.C.C. Area) and Middlesex</i>	<i>Surrey</i>
Arable - - -	4.8 per cent.	9.6 per cent.
Grassland - - -	9.1 "	27.8 "
Rough grazing - -	1.6 "	5.5 "
Non-agricultural land -	84.5 "	44.8 "
Woodland - - -	?	12.3 "

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 p. 24 (S)

Acreage used for urban purposes

	<i>Acres</i>
1925 Land occupied by towns, villages, buildings of all kinds, roads, railways, canals, docks, harbours, aerodromes, industrial waste areas, etc. - - - -	3,724,000
1937 " " " "	4,162,000

'In 1937, therefore, the 41 million people who lived in England and Wales occupied some 4,162,000 acres with the various structures associated with their homes and work—including buildings, roads, railways, sewerage works, cemeteries and industrial waste heaps (but not playing fields, commons and other open areas which, while

LAND UTILISATION

not used primarily for agriculture, still retained a potential agricultural value). In other words, there were ten people per "developed" acre.'

Ministry of Works and Planning. Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 paras. 6, 7 (E)

Percentages of land used for rural and urban purposes

'Total area of 58,340 sq. miles or 37,133,000 acres of land was being put to the following uses [in 1937]:

In agricultural production (including rough grazings) - - - - - 82.1 per cent.

Open land of various kinds not being used for agriculture, but of potential agricultural value - - - - - 1.1 "

Woodland - - - - - 5.5 "

Buildings, roads and various other forms of constructional development or land otherwise unaccounted for in agricultural returns - - - - - 11.3 "

Ministry of Works and Planning Committee on Land Utilisation in Rural Areas. Report (the Scott report). Cmd. 6378 1942 para. 8 (E)

LICENSED PREMISES

Number of licensed premises

SCOTLAND

Years	Applications for renewal of certificates or grant of new certificates	Certificates in force						Registered Clubs: Number of applications
		Inns and Hotels		Public Houses		Grocers		
		Full	Partial	Full	Partial	Full	Partial	
1924	8,957	1,387	20	4,481	69	2,724	135	576
1931	8,555	1,406	13	4,362	55	2,478	159	633
1938	8,254	1,499	7	4,171	32	2,248	187	700

LICENSED PREMISES

ENGLAND AND WALES

Years	Number		Premises closed		New Licences granted (a)	Registered Clubs
	For con- sumption on or off the premises	For con- sumption off the premises only	on pay- ment of compen- sation	other- wise		
	1st January					1st Jan.
1924	80,987	22,135	486	352	267	11,471
1931	77,335	22,125	357	469	357	13,947
	31st December					31st Dec.
1938	73,920	22,052	291	667	495	16,951

(a) Excluding off-licenses granted to existing licensed premises.

*Statistical Abstract for the United Kingdom for each of the
fifteen years 1924-1938 Cmd. 6232 1940 Tables 92-93 (E)*

LOCAL AUTHORITIES

Local government structure and finance

Local government in England and Wales, outside London, consists of (a) a one-tier structure in the county boroughs, each of which is responsible for the administration of all local government services in its area, and (b) a two tier structure in the administrative counties, within which responsibility for the various services is allocated by statute either to the county council or to the county districts, i.e. municipal (or non-county) boroughs and urban and rural districts. In the case of certain services administered by county districts, modern legislation has tended to give county councils some powers of supervision and of giving financial assistance. Throughout the whole field provision exists, and is extensively used, for joint action by local authorities of all types where the service requires a wider unit of administration.

During the war many towns have suffered damage and difficulties have been caused by movement of population and economical and financial disturbances, and local authorities have had to undertake new duties. After the war local authorities will have to undertake heavy and increased duties and, in particular, the execution of the

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policy set out in the White Paper on Employment Policy will call for a high standard of administration, both locally and centrally.

The Government believes that the time is inopportune for a general recasting of the local government structure for two main reasons: there is no general desire in local government circles for a disruption of the present system nor any agreement as to what should replace it; and a change of this magnitude would occupy some years and delay the establishment of the new or extended housing, educational, health and other services which form part of the Government's programme.

Against this two main arguments have been brought:

(1) that some services, such as town and country planning or hospitals, need to be planned and in some cases administered over wider areas than a county or county borough; and

(2) that the reconstruction programme will place an impossible burden on local authority finance.

Interest and apprehension on the question of wider administrative areas have been aroused by the setting up of wartime Civil Defence Regions. But these were established for specific war purposes and although Government Departments will find it necessary to maintain and perhaps develop local staffs and offices, the Regional Commissioner system will certainly not be retained.

There are various other ways in which it would be possible to plan or administer services over wider areas than a county or county borough. (There are also various ways in which it would be possible to deal with the corresponding problem of the services now administered within a county by county district councils. It is not proposed to deal with these here.) The alternatives include nationalisation, regionalisation and joint authorities for planning or executive purposes.

Fears have been expressed that a growing tendency exists to transfer functions from local authorities to the State. In fact, very few such functions [listed in *op. cit.*] have been so transferred. The Government are not prepared to rule out further transfers in good cases, e.g. trunk roads, public assistance, fire services and certain public utility services. The Government are, however, opposed to any general policy of centralising services hitherto regarded as essentially local.

Nor do they believe any solution is to be found in the creation of regional authorities which would introduce a two-tiered system in county boroughs and possibly a three-tiered system in counties.

The Government therefore consider that, where co-ordination of services over wider areas is needed, it should be sought by the established procedure of Joint Boards or Joint Committees. Joint

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Boards have admitted defects: they are not directly elected and must rely for finance on precepting, a method which is said to weaken financial responsibility. Joint Committees formed for planning are open to the charge that it is bad to divorce planning from executive authority. Moreover it can be said with force that as the need for wider planning and better co-ordination is increasingly realised there is a danger of creating a multitude of *ad hoc* authorities covering a variety of areas and services. The Government do not underrate these objections but do not consider they warrant delay in working out the reconstruction programme. The number of services in which joint action or planning is needed is limited, and to proceed in this way does not rule out ultimate integration of the joint bodies in any area into a single unit if experience shows this to be desirable.

The fear that the Government's reconstruction programme will place an impossible burden on local rates has been freely expressed.

The increase in the level of rates during the war has been small in comparison with increases in national taxation, but there will undoubtedly be big increases in the amount of money which local authorities will have to spend after the war on health services and replanning. Local authorities' fears really represent a doubt whether present methods of mitigating the burdens on ratepayers will suffice in the future. These methods are:

- (i) Direct grants to each local authority in aid of expenditure on certain specific services.
- (ii) The General Exchequer Grant (the 'Block Grant') which is not related to a specific service but is a form of supplementary income to local authorities.
- (iii) Acceptance by the Central Government of the liability for the administration of services previously borne by local authorities.

The direct grants may be percentage grants (usually 50 per cent.) for all local authorities, or at varying rates favouring poorer authorities, or unit grants (so much per new house built for so many years—as under the Housing Acts.) They directly reduce the cost to ratepayers of the service which is grant-aided.

The Block Grant is largely distributed according to the relative needs of authorities as determined by a formula. The total sum to be distributed and the basis of distribution are recalculated every five years, and the amount increases as the total expenditure of local authorities increases. There should have been a recalculation in 1942 but because of the war the existing distribution (total sum £46,000,000) has been stabilised until a new Act is passed. Under present statutes the annual amount of Block Grant for each 5-year period is $22\frac{1}{2}$ per cent. of the total expenditure of all local authorities

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which was met out of the rates and the Block Grant in the last year but one of the preceeding 5-year period. Hence when any grant-aided services is started or an existing one expanded the Exchequer not only pays the specific grant but also on the next review bears 22½ per cent. of the remainder of the cost of that service.

The system, particularly the Block Grant, is a very flexible instrument and is capable of adjustment to meet new conditions.

Exceptional financial problems will, however, have to be met in certain areas. Some authorities have had their financial resources so much reduced during the war by enemy action, evacuation or other causes that special measures of assistance must be given to them until their normal prosperity returns. Other authorities, including some of those in the former Special Areas, must be regarded as 'poor' authorities by any test and until local economic conditions improve must also receive special assistance. A general overhaul of the financial relations between the Exchequer and local authorities will be undertaken as soon as the necessary information is available, and will be carried out with a definite bias in favour of the poorer authorities.

Ministry of Health. Local government in England and Wales during the period of reconstruction. Cmd. 6579 1945 pp. 1-8 (S)

LOCAL AUTHORITY BOUNDARIES

Directions to the Local Government Boundary Commission

'The Minister of Health has now made regulations to govern the procedure of the Local Government Boundary Commission and to lay down general principles for the guidance of the Commission in discharging their functions. These are the Local Government (Boundary Commission) Regulations, 1945 (Statutory Rules and Orders No. 1945).

'A schedule to the regulations outlines the general principles to be applied, and emphasises as the governing principle that "the object of all alterations in status of local government authorities and of all alterations in the boundaries of local government areas is to insure individually and collectively effective and convenient units of local government administration".

'In attaining this object some of the main factors to be considered by the Commission are:

'(a) Community of interest; (b) development, or anticipated development; (c) economic and industrial characteristics; (d) financial resources measured in relation to financial need, including in par-

ticular, but not exclusively, the average rateable value per head of population, rates raised per head of population, and the estimated product of a given rate poundage; (e) physical features, including in particular, but not exclusively, suitable boundaries, means of communication, and accessibility to administrative centres and centres of business and social life; (f) population, size, distribution, and characteristics; (g) record of administration by the local authorities concerned; (h) size and shape of the areas; (i) wishes of the inhabitants.

'Some other principles laid down are as follows: The interests of an urban centre and the surrounding countryside should not necessarily be regarded either as diverse or as complementary. All factors should be considered to discover whether on balance a blending of urban and rural territories is desirable.

'The growth of publicly directed development in connection with housing, planning, and similar activities makes it possible to foresee the course of development with greater accuracy than in the past. Where, under the practice which obtained in the past, alterations of boundaries have commonly followed such development, the foregoing consideration may justify making alterations at an earlier stage than formerly, so that any change which may be found desirable in the light of the principles and factors mentioned in the preceding paragraphs of this schedule can be effected with less disturbance of local government administration and finance.

'In considering the governing principle it is essential to take into account the effects of any alterations of status or boundaries on all local government authorities whose problems are, in the Commission's opinion, interrelated and likely to be substantially affected thereby.

'Where the Commission are of opinion that more effective local government might be secured by a combination of local authorities for particular services, or by establishing contractual arrangements between authorities for the use of particular facilities or accommodation than by any alteration of boundaries or status of the authorities, the Commission may bring the matter to the notice of the Minister of Health and may postpone the making of an order under the Act until after they have been informed of the outcome of the Minister's consideration of the matter.

'The following considerations are stated for the general guidance of the Commission:

'(a) An order reducing an existing county borough to the status of a non-county borough should not ordinarily be made unless the population of the county borough as estimated by the Registrar-General is less than 60,000.

'(b) In the absence of substantial agreement an order uniting a

county with another county should not ordinarily be made unless the population of the smaller county as so estimated is less than 100,000.'

The Times 27th Nov. 1945 (E)

Financial aspects of changes in local authority boundaries

The existing law concerning adjustments of the property and liabilities of local authorities after a transfer of territory, is set out in the Fifth Schedule to the Local Government Act, 1933. The broad principle is that there shall be a financial adjustment between the authority which gains and the authority which loses territory, based on the difference between the rate-income derived from that territory and the cost of services rendered to its inhabitants.

In one important respect conditions have altered since the end of the last war. Up to then, the spread of population from the large towns was, in the main, a matter of personal decision by individuals, and the fringe of a spreading population was likely to include a large proportion of houses of high rateable value. Under modern conditions, the bulk of houses in a transferred territory may be working-class houses built by the municipality. It is impossible to say with precision whether such houses 'pay their way', but it has been roughly estimated that the rates paid by the occupier of a house of less than about £30 rateable value are unlikely to cover the cost to the rates of the services which he and his family enjoy. In a development consisting solely of working-class houses of £20 rateable value the rate burden imposed by the services needed would largely exceed the product of the rates. Such an unmixed development does not, of course, occur in practice: some houses of higher value and shops, cinemas, public houses, etc., would probably also be found in the area, and the loss or gain involved in a transfer of territory may well be a matter of doubt.

Ministry of Health. Local Government in England and Wales during the period of reconstruction. Cmd. 6579 1945 pp. 16-17 (S)

Past adjustments of local government boundaries, and proposals

Boundaries of counties (and county districts within the county) and county boroughs cannot be static and effective machinery is needed in order to make adjustments.

The principle of adjusting local government units from time to time is of long standing. The frame-work of modern local government was established by the Local Government Act, 1888. That Act established

62 administrative counties and 61 country boroughs in England and Wales and the Local Government Board (now the Ministry of Health) was empowered to make, under certain conditions, many changes in local government boundaries and status: in most cases Parliamentary confirmation was needed.

In the period between 1889 and 1918, the extension of existing county boroughs and creation of new ones proceeded rapidly and counties were losing a large amount of territory. Evidence tendered to the Royal Commission on Local Government in 1922 showed that the increase in the number of county boroughs since 1889 from 61 to 82 had removed from the jurisdiction of county councils about 100,000 acres, with a population of about 1,300,000 and about £6,500,000 of rateable value. In the same period, county borough extensions had taken from counties a further 250,000 acres, 1,700,000 population, and £8,000,000 rateable value. The 27 counties affected had on the average lost 22·8 per cent. of their population and 20·8 per cent. of their rateable value. As a result of the Commission's first report which influenced the Local Government (County Boroughs and Adjustments) Act, 1926, the movement for county borough extension slackened and only one new county borough (Doncaster) has been created since.

The Local Government Act, 1929, followed the second report of the Royal Commission and introduced a new system for adjusting boundaries of county districts and parishes. The initiative still lay with the county council but it was recognised that adjustment should take place systematically at fixed intervals rather than piecemeal. Every county council was required to review and suggest alterations for the boundaries of districts and parishes, and it was stipulated that a ten-year interval should elapse between any two reviews.

The first series of reviews took place between 1931 and 1936 (1937 in the case of three important counties), and urban districts were reduced in number from 827 to 572 and rural districts from 779 to 476. Success was uneven; and although the Minister of Health was empowered to make further proposals in unsatisfactory cases experience proved that securing radical improvements when the schemes had reached the Minister was very difficult.

Alterations have been suspended during the war but it is expected that both county reviews and applications concerning county boroughs will soon be begun or put forward again. And a county council may find itself under a duty to recast its county districts while being itself under the threat of dismemberment.

It is therefore suggested that a Local Government Boundary Commission should be established which would have power to examine and determine all proposals to change local government boundaries.

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The Commission's power would be subject to two safeguards—(a) a power for the Minister to give the Commissioners 'general directions' concerning the exercise of their powers and (b) more important decisions of the Commissioners will be submitted to the Minister in the form of draft orders and will be subject to Parliamentary review.

The general directions would require the approval of both Houses of Parliament and could be varied from time to time. The directions should not be too rigid, but might include some guidance on the population and financial status appropriate to local government units of various types and enlargement of the limits of country towns to include some surrounding rural land. The creation or extension of county boroughs might also be the subject of general directions, although it is a matter in which the formulation of such directions is difficult—the more so in view of the possible post-war dispersal of large bodies of population. Other matters on which direction might be given are the combination of authorities for specific purposes and the time which should elapse between alterations of local government areas. The Government accept the general principle that the latter interval should not normally be less than 10 years.

Ministry of Health. Local Government in England and Wales during the period of Reconstruction. Cmd. 6579 1945 pp. 9–15 (S)

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History and future work of the Ordnance Survey

The Ordnance Survey was founded in 1791 to prepare a map of Gt. Britain on a scale of 1 inch to 1 mile, mainly as a measure of defence. The task was given to the Board of Ordnance, hence the title 'Ordnance Survey', which arranged for it to be carried out by military personnel. Work on the 1 inch map was begun in 1795 and the first sheet was published on 1st January, 1801. By 1840, all Wales had been covered and all England south of a line through Preston and Hull. In the meantime, a large-scale map of Ireland had become necessary for purely civil purposes and the work had been given to the Ordnance Survey. The production of a 6 inch to 1 mile map was put in hand in 1825, survey was completed in 1840 and the map in 1845. There was an immediate demand for a similar map of Great Britain and such a map of the six Northern Counties of England, which had not yet been surveyed on the 1 inch scale, was authorised in 1840. It became apparent, however, that even the 6 inch scale was not large enough for all the purposes of a national survey, and after a long controversy the 1/2,500 scale emerged as the principal scale on which all other maps were based. The 1/2,500 are still the basic plans, and the revision of the 6 inch continues to be consequent upon that of the larger scale except in mountainous and moorland areas, where the original 6 inch map was not superseded. In all there are 51,456 plans on the 1/2,500 scale as compared with about 250 sheets of the 1 inch scale.

The civil work of the Survey soon outstripped the military in size and importance and in 1870 control of the Survey was transferred from the War Office to the Office of Works and later to the Board (later, the Ministry) of Agriculture. Its military character has however been retained, although civilians were later added to the military nucleus.

In addition, to the 1/2,500 plans, maps to other scales have been authorised from time to time. Town plans on the 10 foot and 5 foot scales were prepared until 1892 when, except for the London area, they were discontinued. Such plans have in some cases been maintained by the local authorities, but generally at a lower level of accuracy.

The Ordnance Survey range of published maps now includes the 1/2,500 plans; the 6 inch, 1 inch, $\frac{1}{2}$ inch, $\frac{1}{4}$ inch and $\frac{1}{16}$ inch scales; sheets of the Carte Internationale du Monde to a scale of 1/1,000,000; and enlargements of the 1/2,500 plans to a scale of 1/1,250.

The present series of scales are as follows:

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1/1,250	or	50·688 inches to 1 mile (enlargements).
1/2,500	or	25·344 inches to 1 mile.
1/10,560	or	6 inches to 1 mile.
1/63,360	or	1 inch to 1 mile.
1/126,720	or	$\frac{1}{2}$ inch to 1 mile.
1/253,440	or	$\frac{1}{4}$ inch to 1 mile.
1/500,000	or	0·126 inch to a mile.
1/633,600	or	$\frac{1}{16}$ inch to a mile.
1/1,000,000	or	0·063 inch to a mile.

It has always been the practise of the Survey to show features of archaeological interest on all maps, and an Archaeological Officer was appointed in 1920 to verify the archaeological information which appeared on maps.

Air photographs proved a valued source of archaeological information and a collection of over 15,000 photographs of great archaeological interest has been made and is being extended. Prints may be bought by the public.

In 1924 it was decided to place some of the collected information before the public by publishing a map of Roman Britain on the 1/1,000,000 scale. This was proved very popular, and other historical maps have since been published and others will be produced.

Among the recommendations of the Committee are the following:

(1) that the 1/2,500 scale should be retained.

(2) that the 1/2,500 survey should be recast on National instead of country sheet lines on a National projection and that in the course of this work errors in the existing plans should be eliminated.

(3) that a National grid should be superimposed on all plans and maps, with certain exceptions, to provide one reference system for all the maps of the country.

(4) that the grid should be based on the international metre.

(6) that the 1/2,500 plans when republished in the new National Series should cover 1 kilometre square of country.

(11) that, when the revision of the 1/2,500 plans has been completed, investigations should be made to establish whether the requirements of urban areas would not be more adequately met by a survey on the 1/1,250 scale.

(12) that when a suitable opportunity occurs additional contours should be introduced.

(17) that the Government should consider the formation of a special Air Survey unit capable of satisfying the needs of the Ordnance Survey, and that, in view of the potential value of air photography, such a unit should be created as soon as practicable.

Ministry of Agriculture and Fisheries. Departmental Committee on the Ordnance Survey. Final report. 1938 (S)

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Post-war programme of the Ordnance Survey

The forthcoming programme of work of the Ordnance Survey is based on the recommendations of the Davidson Committee in 1938, and one of the most important considerations in framing the programme was the need for speed in supplying the maps.

The original Large Scale maps were based on a county meridian and although called a map of Gt. Britain should be more accurately called a map of the counties of Gt. Britain, since any attempt to work across from the maps based on one meridian to those based on another encountered great difficulties. The Davidson Committee recommended that the 1/2,500 plans, and all smaller scales, should be recast on national instead of county sheet lines, and this requires plotting on a projection which does not introduce intolerable distortions when extended over an area the size of Gt. Britain. The projection adopted was the Transverse Mercator, with a Central Meridian 2° West and its origin at 49° North. It is necessary to make certain adjustments to minimise scale error. Finally, further adjustments have been made in order to avoid negative values for points west of the origin, and in order to include the whole of the mainland within 1,000 kilometres, and this places the 'false origin' of the projection a little to the south-west of Lands End.

The Davidson Committee recommended that a National Grid should be superimposed on all maps, with certain exceptions, in order to provide one reference system for the maps of the whole country, and that the international metre should be the unit upon which the grid was based. The Grid consists of a series of lines drawn parallel to the axes of projection, and the distance between the lines varies with the scale of the map: on the inch, 1/25,000 and 6 inch maps the distance is 1 kilometre; on the $\frac{1}{4}$ inch and ten mile scale maps it is 10 kilometres; and on the 1/2,500 and 1/1,250 scales it is 100 metres.

From these lines it is possible to obtain the co-ordinates of any point with an accuracy depending on the scale of the map. In order to use the Grid for reference purposes it is necessary to adopt a recognised method of using the coordinates. The system which is thought most suitable varies a little as between small and medium scales on the one hand and large scales on the other, but is illustrated by the following example of references on small and medium scale maps.

The type of reference advocated is basically the Army system. With this system the position of a point is identified as follows:

Take a point whose co-ordinates
are - - - - - E. 538932 N. 177061
By adopting the convention that
Eastings must always precede

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Northings, we may drop the letters E. and N. - - -	538932	177061
For most purposes it is enough to know the position within 100 metres—the most accurate fixing possible on 1 inch map. The last two figures, which represent 10's and single metres may therefore be dropped -	5389	1770
If the district in which the point lies is known we are not likely to confuse it with another point 100 kilometres away. The first figure of each co-ordinate may therefore be dropped - - -	389	770

The six figures left form what is known as a Normal National Grid Reference. To obtain this reference from a small or medium scale map, first obtain the Eastings by reading the large figures in the margin of the map printed opposite the North and South line which bounds the western edge of the square in which the point lies. This gives the first two figures of the reference. Then estimate tenths inside the square towards the next line to the East. This gives the third figure and completes the Eastings part of the reference. A similar process gives the three Northings figures and completes the whole reference.

In order to make the reference unique throughout Britain it is necessary to reintroduce the first figures representing 100's of kilometres. This is done by putting the figures together at the beginning of the reference and separating them from the normal reference by an oblique stroke, thus 51/389770. This is known as a Full National Grid Reference.

The principal small-scale maps which it is proposed to publish are as follows:

(1) *The 1/1,000,000 map* in the same style as the pre-war map 'In the style of the International Map' but with National Grid lines superimposed at 100 kilometre intervals;

(2) *The 10 miles to 1 inch* with Grid lines at 10 kilometre intervals instead of the pre-war yard grid.

(3) *The 1/625,000 map* with Grid lines at 10 kilometre intervals. This map has already been produced in two sheets and is an outline map in one colour, and is used principally as the basis on which the Ordnance Survey are publishing for the Ministry of Town and

Country Planning a series of maps illustrating special features, such as Land Utilisation, Population Density, etc. The map is valuable as a complete index to the 1/25,000 series mentioned below, because the squares of the 10 kilometre Grid represent the sheet lines of that series.

(4) $\frac{1}{4}$ inch to 1 mile. This will comprise the pre-war 4th Edition revised and with the National Grid sheet lines at 10 kilometre intervals substituted for the yard grid.

(5) 1 inch to 1 mile. In England the 6th Edition is on standard sheet lines, 40 × 45 kilometres. Its general design is similar to the pre-war 5th Edition, but it shows the National Grid at 1 kilometre intervals instead of the yard grid at 5,000 yard intervals. A 1 kilometre interval tends to crowd a 1 inch map while a 10 kilometre interval is too wide: on this map a compromise has been sought by using fine dotted lines for the kilometres and firm lines for the 10 kilometres. As already mentioned, the squares of the Grid are the sheet lines of the new 1/2,500 plans and the 1 inch maps therefore form a complete index to those plans.

In the North of England no newly-drawn material is available for this series, so a Provisional Edition is being prepared from the Popular Edition by photography of the copper plates and revising. In Scotland the Popular Edition is being revised and republished with the National Grid added.

The 1 inch map will also be available in an ungridded edition and will be produced in 'fully-coloured' and 'outline' form.

For the time being the Military 1 inch map will be available to the public and this carries the Military Grid which is quite different from the National Grid. All maps incorporating the National Grid will have the words 'National Grid' on the cover or in the margin of the map.

A new map at the scale of 1/25,000, or about 2½ inches to the mile, is to be published. The sheets of this map will be squares of 10 kilometres and will be bounded by National Grid lines. A Provisional Edition will carry contours at 25 ft. vertical intervals, but the design of the final map has not been decided.

The design of the new 6 inch to 1 mile map has not yet been decided, and it has been decided to publish a Provisional Edition which will incorporate the results of the 1938 Emergency revision and the National Grid.

It has been found that resurvey is essential for the production of new large-scale plans and it has been decided that this resurvey should be at a scale of 1/1,250. The whole of the field work and preparation of the plans for printing will be carried out on metal and

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not on paper or any other material liable to distortion. From the completed 1/1,250 plans three maps will be produced: the published 1/1,250 of built-up areas; the published 1/2,500; and an unpublished 1/1,250 for the Land Registry.

The 1/1,250 map is to be published in square sheets of half a kilometre side which form quarter sheets of 1/2,500 plans. The margins are so designed that any four sheets can be joined together to form a complete map.

As an interim measure it is proposed to try to produce air photo-mosaics of built-up areas at a scale of about 1/1,250. These will be on the sheet lines of the 1/1,250 plans and will have the cutting lines of the National Grid indicated in the margins. Street names will be included.

The 1/2,500 map will continue to be the largest scale Ordnance Survey map covering the whole country outside certain moorland areas. The sheets will be squares of 1 kilometre side, and margins will be arranged so that any two or four sheets can be joined together to form a single complete map.

CHEETHAM, G. *The post-war programme of the Ordnance Survey: with special reference to large-scale maps. Transactions of the Chartered Surveyors' Institution Vol. lxxvii Part iii 1945 pp. 33-45 (S)*

MINERAL WORKING

Mineral working and town and country planning

The word 'mineral' is here used for any natural inorganic substance which is extracted from the more accessible portions of the earth's crust for some economic purpose.

During the period 1919-1938, the output of coal, the most important mineral, remained fairly steady, but owing to the increasing output of less valuable quarried minerals the proportion of total tonnage represented by coal declined sharply while the value remained relatively high:

	1920	1938
Tonnage of all minerals	282,000,000	351,000,000
Tonnage of coal - -	229,000,000	227,000,000
Percentage, coal - -	84%	65%
Value of all minerals -	£427,000,000	£215,000,000
Value of coal - -	£397,000,000	£189,000,000
Percentage, coal - -	93%	88%

MINERAL WORKING

Coal mining conflicts with other forms of land use mainly through causing surface subsidence, but as coal mines are extending their operations under rural rather than urban areas and mines are on the average getting deeper, the problem is in general getting no worse.

The problem presented by quarrying, however, has increased enormously since the 1914-18 war. The greatest increases in output of quarried minerals have been shown by those which contribute to civil engineering operations and the output of brick clays has also expanded considerably. The following table compares the total output of various quarried minerals over two nineteen-year periods :

	1895-1913 (million tons)	1920-1938 (million tons)
Clay - - - -	208.7	453.4
Limestone - - -	225.5	343.4
Chalk - - - -	82.7	155.3
Igneous rocks - -	103.5	217.2
Gravel and sand - -	37.8	220.0
Sandstone - - -	92.2	87.9
Slate - - - -	7.0	6.9

The expansion in output was achieved largely by the mechanisation of quarrying operations, and the most notable increases in the number and size of quarries were in the Thames Basin counties owing to the great development of gravel digging. It is clear that problems of considerable size have arisen concerning quarrying in relation to other forms of land use which were non-existent at the end of 1914-18 war and were barely appreciated when the Town and Country Planning Act, 1932, was formulated.

The number of working quarries in Great Britain in recent years has averaged over 6,000. A very large part of our quarrying industry raises no serious problems, it is also an essential industry and has as much right to the use of land as other forms of development. But certain types of quarrying may waste land by rendering it ugly and incapable of any further economic use and existing powers of control of mineral working are inadequate.

Quarries are large holes in the ground or excavations in hillsides, and restoration of the surface to original level and use is usually impossible. How far effective restoration is feasible depends on the thickness of the mineral deposit being worked, the thickness of the overburden covering the deposit and the relation of the underground water-table to the level of the quarry floor. It depends also on the

methods by which the overburden is removed and dumped, and on whether the top soil is retained separate from the rest of the overburden for subsequent replacement.

A thin stratum covered by thin overburden presents a comparatively easy restoration problem. A thick stratum, 20–50 feet or more, will leave a large hole whether or no there is any overburden; it may be difficult to restore the previous surface but the hole may be used as a controlled tip and the scar hidden with vegetation. A very large proportion of our quarries are of this kind.

A very thick overburden removed to uncover a comparatively thin seam of mineral will cause very great disturbance, but no great change of level. This is the problem presented by the deeper ironstone workings and the wartime opencast working of coal. If the normal underground water level is near the surface, a quarry which penetrates below this level will become flooded, especially when working ceases. Especially serious are sand and gravel pits which are worked wet by dredging or pumping from the bottom of an artificial lake. Such holes may be 20–30 feet deep and almost impossible to fill as only carefully-chosen material can be tipped if water pollution and the breeding of mosquitoes are to be avoided.

The following is a short survey of the major quarried minerals in England and Wales and the planning problems to which they give rise.

Gravel

Output tonnage increased ten-fold between 1922 and 1937 and annual output is now about 40 millions, so that gravel now takes second place to coal by weight.

Gravel has a very low value by weight (2s. 7d. to 3s. 9d. per ton in 1938) which greatly restricts its marketable area and makes gravel-working very difficult to control. Thirty miles is probably the economic limit for road transport of gravel and very few pits have rail transport.

Gravel is a widely distributed mineral. There are two main types of occurrence. The first is low-level deposits, generally in the form of river terraces, which are economical to work but also tend to carry rich agricultural land. The second is the higher level, glacial or plateau gravels, which are not so clean as low-level gravels and are therefore of less value.

As low-level gravel land is usually flat and well-drained it is also suitable for buildings and airfields and there is thus the maximum of competition for it.

During wartime the demand for gravel in the London area has

diminished, but reconstruction will no doubt cause a boom in gravel working and increase the planning problems. One of the worst affected areas is the Feltham Urban District, which is entirely underlain by gravel and hemmed in also on every side by lakes or land owned by gravel companies and destined to be converted from market gardens into lakes, of which the largest so far is $\frac{3}{4}$ mile long, $\frac{1}{2}$ mile wide and over 20 feet deep.

Probably 100 acres of land were devastated by gravel-working each year in Britain at the 1939 rate of output and very little restoration of gravel pits has been attempted. The pits in the Thames valley form vast lakes, 10 to 100 acres in size, and distributed haphazard over unbuilt-on land which lower the water-table under adjoining land with harmful effects on agriculture.

Ironstone

The ironstone quarrying industry of Northamptonshire has rendered a large area of land temporarily useless by the dumping of overburden from the deep quarries, and the 'hill and dale' dumping above ground level is very conspicuous. Restoration problems differ from place to place. Some of the ironstone field carries good soil but much of it poor farming soils. There is therefore not the same destruction of first-class farmland as in many of the wet gravel-pit areas. The total area of derelict land in the East Midlands ironstone fields is less than 3,000 acres.

Afforestation may be the most appropriate treatment for the 'hill and dale' containing limestone blocks. In other areas, levelling, ploughing and sowing suitable crops such as clover and lupin may, with suitable treatment, produce a new soil in a few years. But it is not easy to see how the cost can be met. Ironstone was only worth 3s. 5d. per ton before the war, and on opencast coal working, which involves similar excavation problems and in which restoration has been complete, there has been an average loss of 13s. 8d. per ton, on produce valued at 22s. 4d. per ton, during the first 2½ years operation.

Limestone and Chalk

Limestone is one of the commonest rock types of Britain, especially in England and Wales, and it and its products may be used for more different purposes than any material of the earth's crust. Britain possesses vast reserves of many qualities.

Chalk is a form of limestone, and chalk quarrying problems do not differ materially from those of limestone. The word limestone is here used to exclude chalk.

The annual output of limestone more than doubled between the two wars, Derbyshire providing about one quarter of the whole.

The output of chalk in England (there is none in Wales) multiplied threefold between 1921 and 1939, chiefly because of the growth of the cement industry in the south-east. 70 per cent. of the total output came from Essex and Kent.

The planning and amenity problems of limestone and chalk quarrying vary from area to area according to size and method of working. Older limestones occur mainly in upland areas where the value of the land for farming is small but the scenery good. A small amount of quarrying is not objectionable but where whole hills are removed, as in north-western Derbyshire, the workings and the occasional accompanying cement works are a great nuisance. The industry in that area is, however, so vital to the chemical industries of South Lancashire that the most that can be done is to confine the devastation within reasonable limits. At Hope, on the edge of the High Peak limestone area, cement works have required a double quarrying activity—of limestone and shale—in an area famous for its scenery. The owners have therefore employed a landscape architect to plan a progressive scheme of restoration.

Jurassic limestones and chalk occur at lower altitudes on soils which though arable are not often of first class quality. Chalk quarries are more of a nuisance when lime kilns or cement works are attached, for in this case fumes and white dust and dumps of lime-kiln waste are added to the eating away of the land. The problem is worst where, as on Thames-side, the cement industry intermingles with suburban development. In North Kent, cement companies control 5,500 acres of land and four towns find expansion almost impossible. Yet Thames-side is the most suitable place in England for the cement industry: the chalk adjoins the river bank, river mud or London clay is easily available, cheap water transport is there and the London market on the doorstep. The Chiltern works are a different case. A marly chalk, needing no other materials, is used. The works are alongside the railways and the main Chiltern Scarp is not affected by the quarrying. The land is not valuable agriculturally and the works are not intermingled with housing. They are probably the most satisfactory group of works from the planning point of view.

In the Lower Lias cement works the material consists of bands of limestone separated by thicker beds of clay or shale. Most of the clay is waste and forms large heaps. The quarries are mostly deep and do not spread very rapidly. Examples are at Rugby and Harbury and on the coast of South Wales.

Igneous Rocks

Granite, basalt, whinstone, etc., are mostly quarried in eight or nine counties, and about 90 per cent. was used before the war for

road metal. The rare occurrences in Lowland Britain, e.g. Leicestershire, are very important. Igneous rock quarrying, being mostly on hilltops, does no damage to agriculture and the quarry face moves slowly. Taken generally, igneous rock quarries do less damage to scenery than limestone quarries. But there are exceptions, as at the Roman Wall and Yr Eifl in north-west Wales.

Brick-clays

There are more than 1,200 brickworks in England and Wales and a considerable proportion of them are served by nearby clayholes, the remainder depending for the most part on mined colliery shale or old colliery spoilbanks. Before railways and mass-production, building had to be done with local materials and most clay formations have been used at some time for brickmaking and the number of disused clay-pits probably runs into thousands; most are shallow and have become overgrown and sometimes the large ones remain as ponds.

Just over 400 works are based on clays and shales of Carboniferous age, mostly Coal Measures. The chief production areas are the Lancashire and Yorkshire coalfields, Northumberland and Durham and North Wales.

Formations younger than the Carboniferous supply the raw material for about two-thirds of the works. Keuper Marl is of great importance in the Midlands, and Oxford Clay, especially in the belt between Peterborough and Oxford, is of exceptional importance.

The isolated brickworks with clayhole creates a small planning problem. It probably expands very slowly and not at the expense of first-class farmland. Where the clay pits and brickworks are so concentrated as to leave little space between them for farming or development—as in parts of the Birmingham/Black Country area and elsewhere—it is a much more serious problem. Little can be done while the industry flourishes. A third type of problem occurs in the mass-production areas where brickmaking from Oxford Clay has created enormous holes and forests of chimneys. The chief centres are Peterborough, Bedford and Bletchley, and one brickworks at Stewartby, near Bedford, has an output of 500 million bricks a year, one-sixteenth of the total British production. The Oxford Clay exists in very thick and reasonably homogeneous beds and is very suitable for machine pressing. It is mechanically dug and the overburden and waste is dumped behind the excavator in the area already worked, where it forms a kind of hill and dale well below the general ground level. In time it develops a weedy vegetation and the hollows become waterlogged. If not too waterlogged the hills might be levelled and made to grow something.

In one type of brickmaking in the Black Country old coal mining shale heaps are used for brick making. Generally speaking only the oldest spoilbanks can be used since the shale in them, if unburnt, is well weathered whereas modern spoilbanks are frequently burnt and contain other debris besides shales. In time, the spoilbanks are removed and the ground is left level and made available for building development.

Sandstone and Sand

Much sand comes from gravel pits and thus cannot be separated statistically. Sandstones and sands do not generally yield soils of high agricultural value. The road metal sandstone quarries extend more rapidly than the flagstone and building stone quarries and frequently cut into prominent and attractive hills, and huge conical waste heaps are apt to accumulate.

China Clay

In a few localised deposits in Cornwall and Devon Britain possesses one of the major deposits of China Clay, of the finest quality, which has many industrial uses. It is obtained from deep pits and working results in the formation of huge waste heaps of quartz sand for which no economic use exists near the producing area. It would be costly to return the sand to derelict pits, and most of the latter have stopped because of cramped site area rather than because they are worked out. The present multiplicity of ownerships makes it impossible to secure good working conditions.

Slate

Slate is quarried almost entirely within small areas in Wales, the Lake District and Cornwall. Slate is obtained from huge open quarries or the best beds are followed underground. Anything up to 95 per cent. of the material quarried may be waste which accumulates in heaps around the excavations. The agricultural value of the land quarried is usually very low, and, from an amenity point of view, the quarries are imposing landscape features in themselves and are much visited. Perhaps the most urgent planning problem is how to keep the industry alive in the face of competition from tiles.

Quarrying in general

From the viewpoint of competition with other forms of land use, three categories of planning problem may be distinguished: (1) those of areas in which surface mineral workings are in severe competition with other forms of land use and is raising urgent problems; (2) those of areas where mineral working is a major factor to be considered in

planning; (3) those of areas where mineral working, though considerable, does not conflict to such a marked degree with other forms of land use. This classification is not, of course, rigid.

There is little doubt that the two greatest problems are those of gravel in the Thames Valley and ironstone in the East Midlands and, in my view, the former is much the more serious. In the Lower Thames area, chalk quarrying, with accompanying cement manufacture, adds to the grave gravel-working problem.

Looking at the map of mineral workings in relation to planning problems [prepared under the author's guidance] one is struck by the concentration of problem areas in the north-west-south-east 'axial belt' [from Lancashire to the Thames Valley]. It is suggested that this is because development has been most active in this 'belt' between the wars, and so the conflict between quarrying and other forms of land use is more active here. The map would show a more even distribution of problem areas if mining as well as quarrying had been included.

Coal Mining

Almost our whole industrial structure is founded upon coal, and it is of the utmost importance to ensure that it is worked without waste. One aspect of this large subject may be mentioned—the importance of estimating the life of our coalfields and individual pits within them. One cannot plan for the future of particular mining communities without knowing the prospects of the pits on which they depend. Similarly, since subsidence depends on the nature of mining at each pit, only a thorough study by a mining engineer can yield information on the liability of undermined areas to subsidence. This may enable the worst areas to be avoided by housing until the subsidence is finished and suitable precautions to be taken in other areas.

Apart from subsidence, the other main planning problem is the spoilbanks at pitheads. They consist of shale, stone, and rubbish from the mine mixed with a certain amount of slack coal and dust from the washeries. They are liable to catch fire and may burn unchecked for years, although in wartime they were extinguished for A.R.P. reasons. Any process which would prevent their formation or enable some use to be made of them would be of great assistance.

An allied problem is that of the older, lower spoil-banks. It has been estimated that $22\frac{1}{2}$ square miles of the Black Country is covered by old shale mounds.

Salt

Most of our salt is now produced by brine pumping, and this produces subsidence which is much less predictable than that caused by

coal-mining. The area most affected is the Cheshire Plain. The considerable subsidence in the Northwich district was primarily caused by the collapse of the old rock salt mines, but was continued with the flooding of the mines and consequent solution of the pillars and unworked portions of the salt beds. Fresh water becomes saturated with salt, and thus will not take up any more, long before it reaches the pumping shaft. The subsidence caused, therefore, usually takes place at a distance from the shaft and it is difficult to decide which pumping station is responsible for which subsidence.

Only a one-hundredth part of the Cheshire salt has yet been removed. Beds of total thickness from 180 to 595 feet are all comparatively near the surface.

Non-ferrous metals

Mining lead, zinc, copper and tin has been carried on in many parts of Highland Britain for many centuries, and nineteenth century activity has left disturbed ground and debris—notably in the Pennines (mainly lead mining). In parts of the Pennines and the Lake District and especially in Cornwall, where a serious decline in production has taken place in the last fifty years, it is not lack of resources but the system of privately owned mineral rights and taxation which prevent the needed large-scale exploration and exploitation taking place.

The revival of Cornish and other metalliferous ore mining is of national importance as the mines provide a training ground for mining engineers who subsequently go abroad and also provide an experimental ground for mining machinery which is exported on a considerable scale.

BEAVER, S. H. *Minerals and planning. Geographical Journal* Vol. civ Nos. 5 and 6 1944 (S)

MORTALITY

Decline in mortality since 1750

'The death rate in Gt. Britain in the eighteenth century prior to the Industrial Revolution was undoubtedly high (Warren S. Thompson, *Population Problems*, 1930, p. 40, and J. H. Clapham, *An Economic History of Modern Britain*, Vol. I, 1926, Chaps. 2 and 14, and Vol. II, 1932, Chap. 2). In London it was probably as high as 50 per 1000 in 1750, and it was still over 30 per 1000 in 1800. In the smaller towns and rural districts of England there was a considerably lower death rate than in London and some of the larger places, but, even so, it

MORTALITY

was probably not less than 35 per 1000 in the middle of the eighteenth century for the whole of England. By 1800, it had fallen to between 25 and 30, leaving a considerable margin as compared with the birth rate even if that did not exceed 35 as may well have been the case, and when the second and third censuses had been taken (1811-21) the flood of new life had popularised the phrase, a 'redundant population'. (In 1937 the standardised death rate in England and Wales was 9.3 per 1000—Annual Report of the Chief Medical Officer, Ministry of Health, 1937). This decline of the death rate was largely attributable to the Industrial Revolution itself: that Revolution removed two great positive checks which had been operative in greater or less degree until that time, namely, inadequate subsistence and the heavy incidence of disease due to lack of proper sanitation—sanitation which the growing wealth of the towns was in succeeding years to provide.'

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 26 (E)

Death rate, 1870-1938

Years	Death rate per 1,000 population	
	England and Wales	Scotland
1870-2	22.3	22.3
1880-2	19.7	19.7
1890-2	19.7	19.7
1900-2	17.2	17.9
1910-2	13.8	15.1
1920-2	12.4	14.2
1930-2	11.9	13.4
1933	12.3	13.2
1934	11.8	12.9
1935	11.7	13.2
1936	12.1	13.4
1937	12.4	13.9
1938	11.6	12.6

Note: The rates shown in the upper portion of the table represent the average experience in the three years about each census.

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938. Cmd. 6232 1940 Table 7 (E)

MORTALITY

Comparative mortality by size of town

Areas and population Groupings	Standardised mortality ratios at all ages (a)		Infant Mortality			
			Ratios per 1,000 live births		Rates per 1,000 live births	
	1935	1936	1935	1936	1935	1936
England and Wales -	100	100	100	100	57	59
County boroughs outside Greater London:						
Under 50,000 -	109	103	112	92	64	54
50,000-100,000 -	110	110	109	107	62	63
100,000-250,000 -	114	113	114	108	65	64
250,000 and over -	116	112	121	117	69	69
Other towns outside Greater London:						
Under 50,000 -	100	100	96	95	55	56
50,000-100,000 -	108	99	93	80	53	47
Towns of London's outer ring:						
50,000-100,000 -	81	84	81	83	46	49
100,000 and over -	90	92	84	88	48	52
London Administrative County -	99	104	102	112	58	66
Scotland - - -	100	100	100	100	77	62
Burghs:						
Under 20,000 -	95	93	85	81	65	66
20,000-50,000 -	103	103	99	101	76	83
50,000-100,000 -	109	108	109	119	84	98
100,000-250,000 -	102	100	103	92	79	76
250,000-1,000,000	100	99	91	83	70	68
Over 1,000,000 -	118	123	128	132	98	109

(a) A 'standardised mortality ratio at all ages' is the local standardised death rate expressed as a percentage of the national standardised death rate in the same year.

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para, 120 (E)

MORTALITY

Comparative mortality in various types of locality

Area	Standardised death rates per 1,000 living at all ages Average rates		Infant mortality rates per 1,000 live births Average rates	
	1911-14	1931-34	1911-14	1931-34
England and Wales, all areas - - -	13.5	9.7	110	64
London Administrative County - - -	14.5	10.1	108	65
County Boroughs (a) -	15.9	10.9	125	73
Other urban districts (a)	13.0	9.7	107	61
Rural districts (a) - -	10.9	8.7	90	56
Per cent. excess in county boroughs over rural districts in England and Wales - - -	+46	+25	+39	+30
Scotland, all areas -	14.9	11.2	110	82
Large burghs - -	16.8	12.2	123	90
Small burghs - -	14.2	10.6	102	70
Landward areas - -	12.8	10.0	91	71
Per cent. excess in large burghs over landward areas in Scotland -	+31	+22	+37	+27

(a) Excluding areas in London's outer ring from 1931 onwards.

(This exclusion has no important effect on the county borough or rural district rates, but it raises the rates for other urban districts by about 5 per cent.)

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report) Cmd. 6153 1940 para. 116 (E)

Comparative mortality in Holland and England and Wales

'It will be observed that both the infant mortality rate and the crude death rate are lower in Amsterdam and Rotterdam (cities with populations of 782,000 and 595,000 respectively in 1936) than in Holland as a whole, and are much below the rates prevailing in the same years in the rural districts of England and Wales. Even after making allowances for present differences in age constitutions between the total

MORTALITY

populations of Holland and this country, the Dutch national rates remain much below the English.' [See table below.]

	Infant Mortality per 1,000 live births		Crude death rate per 1,000 living	
	1935	1936	1935	1936
Holland:	40	39	8.7	8.7
Amsterdam - - -	28	29	8.3	8.6
Rotterdam - - -	36	31	7.7	7.6
England and Wales - -	57	59	11.7	12.1
London - - -	58	66	11.4	12.3
Birmingham - - -	65	63	11.1	11.5
Liverpool - - -	84	76	13.4	13.2
Plymouth - - -	60	57	12.5	12.7
Southampton - - -	46	53	11.5	12.1
All Rural Districts -	49	53	11.8	12.2

Royal Commission on the Distribution of the Industrial Population. Report (the Barlow report). Cmd. 6153 1940 para. 124 (E)

Infant mortality

'Deaths of infants under one year of age per 1,000 live births:

Years	England and Wales	Scotland	Years	England and Wales	Scotland
1870-2	156	126	1927	70	89
1880-2	141	118	1928	65	86
1890-2	149	125	1929	74	87
1900-2	146	124	1930	60	83
1910-2	110	109	1931	66	82
1920-2	80	94	1932	65	86
1930-2	64	84	1933	64	81
			1934	59	78
			1935	57	77
1924	75	98	1936	59	82
1925	75	91	1937	58	80
1926	70	83	1938	53	70

MORTALITY

Note: The figures in the first portion of this table represent the average experience in the three years about each Census.'

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938. Cmd. 6232 1940 Table 29 (E)

MOTOR VEHICLES

Number, etc., of motor vehicles

<i>Year</i>	<i>Private cars</i>	<i>Commercial vehicles</i>	<i>Hackneys</i>	<i>Motor cycles</i>	<i>Total</i>
1904	8,465	4,000	5,345	—	17,810
1912	88,265	52,600	34,869	69,501	245,235
1920	186,801	101,000	74,608	287,739	650,148
1925	590,156	256,567	102,674	581,228	1,530,625
1930	1,075,081	382,397	102,791	732,698	2,292,967
1935	1,505,019	478,313	87,383	521,128	2,591,843

From Figures by the Society of Motor Manufacturers and Traders, Ltd. London. (1936.)

<i>Country</i>	<i>Motor vehicles per mile of road*</i>	<i>Population per vehicle</i>
United Kingdom -	11.2	20.6
Belgium -	10.2	41
U.S.A. -	8.6	4.5
France -	5.2	19
Germany -	5.2	49
Denmark -	4.4	27
Italy -	2.6	103
New Zealand -	3.6	7
Canada -	2.8	9
Australia -	1.4	10

* Mileage of city streets is not included.

From an estimate by the U.S. Department of Commerce, January 1936.

TRIPP, H. ALKER *Road traffic and its control*. 1938 p. 3 (E)

MOTOR VEHICLES

Number of motor vehicles in Gt. Britain

'Number and types of licences current on 31st August. Great Britain.'

<i>Class of vehicle</i>	1924	1931	1938
Cars taxed on horse-power -	473,528	1,076,128	1,916,226
Cycles - - - -	495,579	603,728	436,231
Commercial goods vehicles	203,156	348,969	471,156
Motor hackneys - -	94,153	86,208	87,536
Total motor licences - -	1,326,348	2,189,650	3,039,683

Statistical Abstract for the United Kingdom for each of the fifteen years 1924-1938 Cmd. 6232 1940 Table 248 (E)

Stopping distances, etc., of motor vehicles

<i>Miles per hour</i>	<i>Speed Analysis</i>			<i>Stopping Distances for Cars</i>		
	<i>Feet per minute</i>	<i>Feet per second</i>	<i>Seconds per 100 ft.</i>	<i>Distance in feet: braking</i>	<i>Distance in feet: reaction</i>	<i>Total stopping distance</i>
20	1,760	29.3	3.4	22	22	44
30	2,640	44.0	2.2	50	33	83
40	3,520	58.6	1.7	88	44	132
50	4,400	73.3	1.3	138	55	193
60	5,280	88.0	1.1	198	66	264
70	6,160	102.6	.97	—	—	—

Source: Charles W. Barr, *The American City*, Mar. 1940.

Town Planning Institute Journal Vol. xxvi No. 3 1940, p. 100 (E)

Stopping distances of motor vehicles

'The distances in feet in which a vehicle can be stopped on a level road under normal wind conditions can be judged from the following table:

MOTOR VEHICLES

<i>Speed in miles per hour</i>	<i>Brake efficiency per cent. and stopping distances in feet.</i>				
	30%	40%	50%	60%	70%
20	45	34	27	22	19
30	100	75	60	50	43
40	178	134	107	89	77
50	275	208	166	138	119
60	400	298	239	199	172

TRIPP, H. ALKER *Road traffic and its control.* 1938 p. 157 (E)

NATIONAL INCOME

Percentage of national income taken by taxation

	<i>Percentage of national income mobilised for public use by taxation</i>	<i>Net receipt by Exchequer per head of whole population</i>
1913-14	6-8	£1 16s. direct, and £1 16s. indirect
1925-26	17-19	
1937-38		£17 16s. (total)
1941	31	£25 2s. direct, £15 15s. indirect
	Percentage of tax borne by under £500 incomes	Number of direct tax-payers
1938-39	7.4	3,800,000
1941-42	32.4	10,500,000

The Times 20th Mar. 1943 (S)

War-time income, taxation, and expenditure

The national income had increased from £4,604 million in 1938 to £8,172 million in 1943—by 77 per cent. Part of this increase reflects a rise in prices and wages, i.e. depreciation of money values, but an equal part is due to the full mobilisation of resources. Improved industrial efficiency also played a part. It is probably not too sanguine to conclude that, of the 77 per cent. increase, some 35-40 per cent. is caused by the rise in prices and wages while the other half of the increase results from increased production.

The daily expenditure of the central Government rose from £9.2 million in 1940 to £14 million in 1942 and £15.8 million in 1943. Of this last amount only £2 million a day went on the usual objects of Government expenditure (including interest on the National Debt); all the rest was spent on the war.

In 1940, 37.7 per cent. of central government expenditure was raised by taxation. In 1943, 49.7 per cent. of a larger total was so raised.

Between 1938 and 1943 the amount of direct taxes paid increased by 250 per cent. and the amount of indirect taxes more than doubled.

From the aggregate of private incomes (including impersonal in-

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